JOURNAL

of the

INDIAN MEDICAL ASSOCIATION

VOLUME 30 NUMBER 10 CALCUTTA MAY 16, 1958

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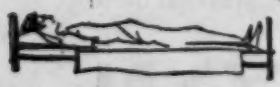

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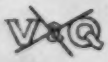

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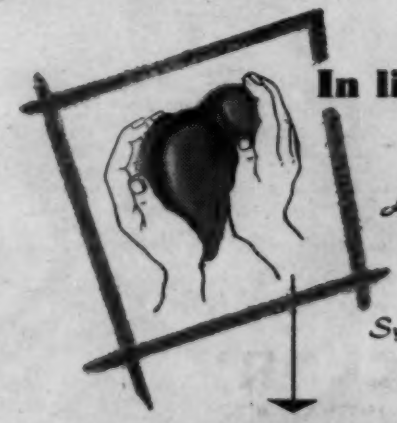

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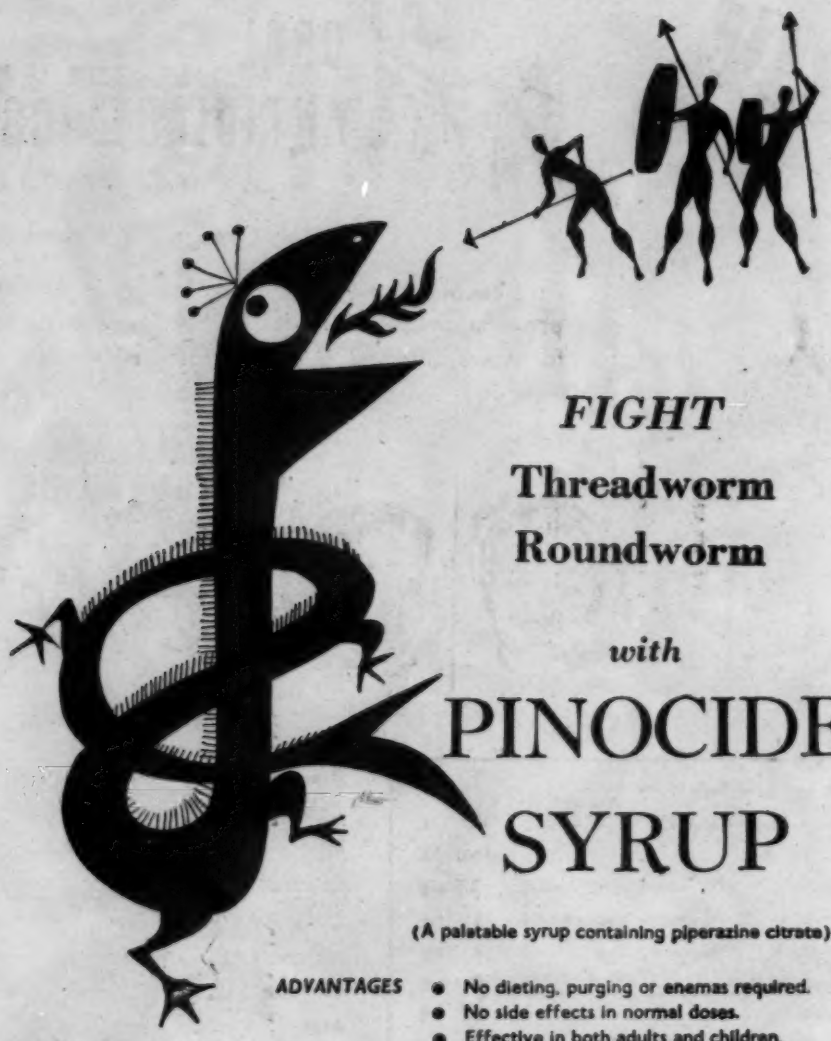

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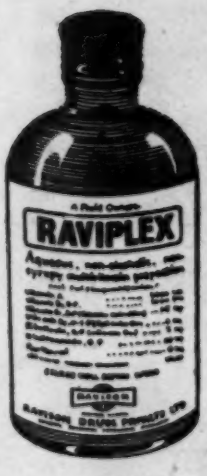

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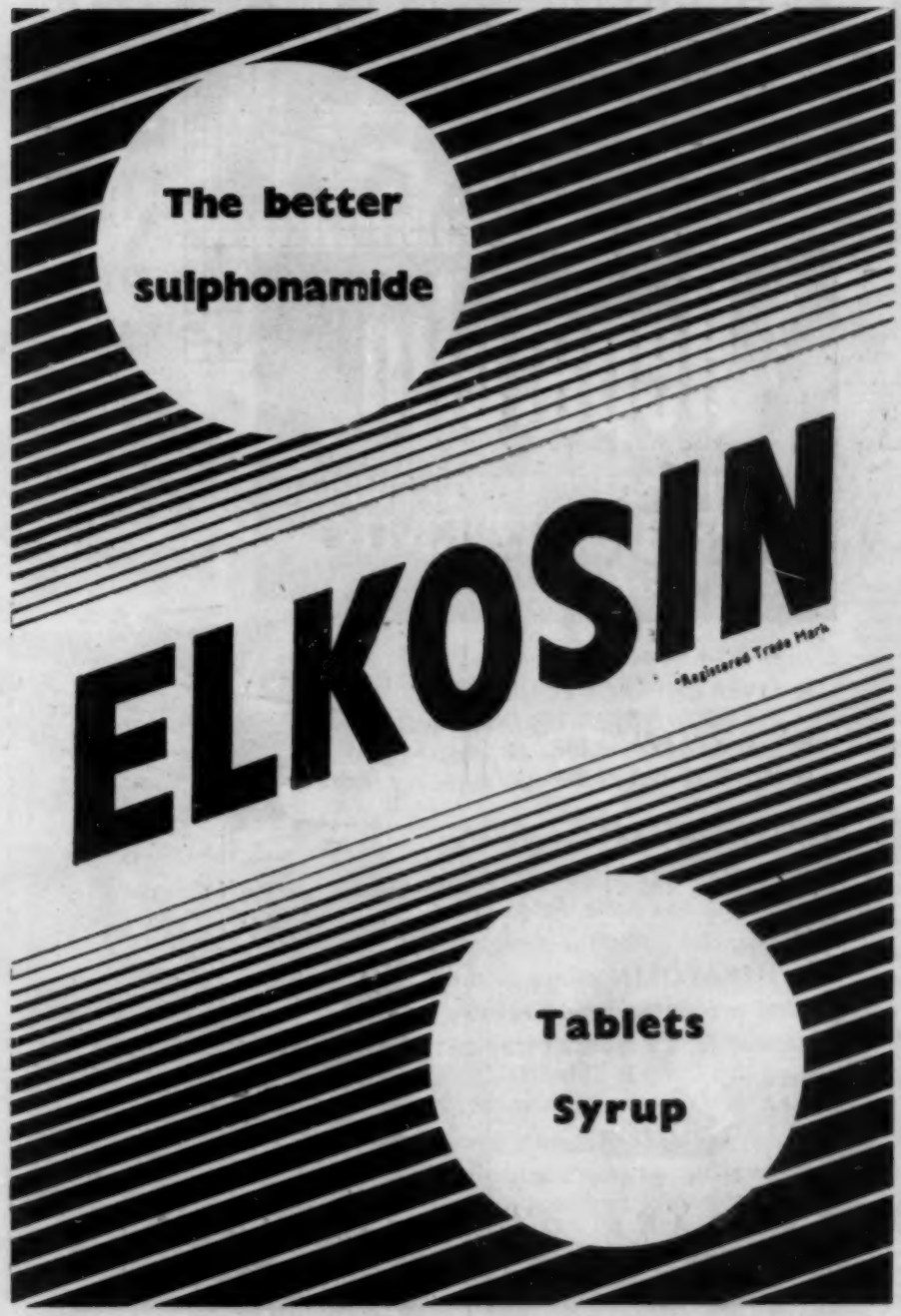

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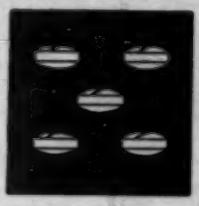

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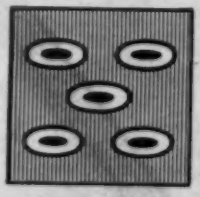

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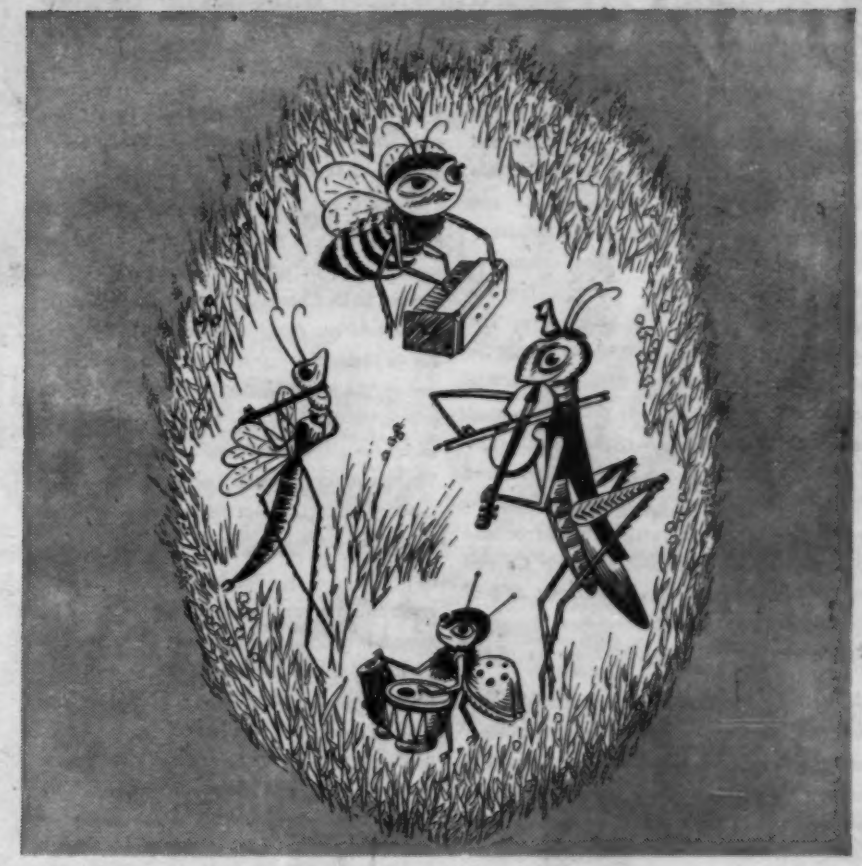

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W. R. Bloor, Professor of Biochemistry, University of Rochester, has stated that fats, whether of plant or animal origin, are very similar to one another from the nutritional standpoint. It is to be expected that they do not differ much in digestibility or in metabolic usefulness. A hydrogenated oil is absorbed as easily as the oils it is made from, provided its melting point remains below body temperature. Both A.B. Roy, working in Calcutta, and C. F. Langworthy in the U.S.A., have demonstrated convincingly that the digestibility coefficients of vegetable oils that are hardened up to a melting point as high as 45°C are as good as those for butter fat and liquid vegetable oils. A similar conclusion was reached by G. R. Cowgill who writes that, in an otherwise satisfactory diet, a vegetable fat can replace butter to aid growth and reproduction.

Fats are carriers of fat-soluble Vitamins A and D which are essential for normal health and growth. In some tropical countries like Ceylon, India, China, the West Indies and parts of East Africa, the problem of child blindness due to lack of Vitamin A is widespread and serious. So much so that L. Fitzgerald Moore concluded that the only hope of a solution is to reinforce the local vegetable oils and fats with Vitamin A concentrates. Lack of Vitamin A is the biggest single factor responsible for a large number of deficiency diseases in India.

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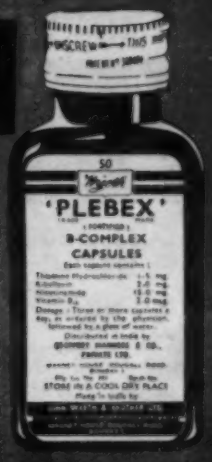

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English Language Edition of the Deutsche Medizinische Wochenschrift.

Volume 111 (1958)

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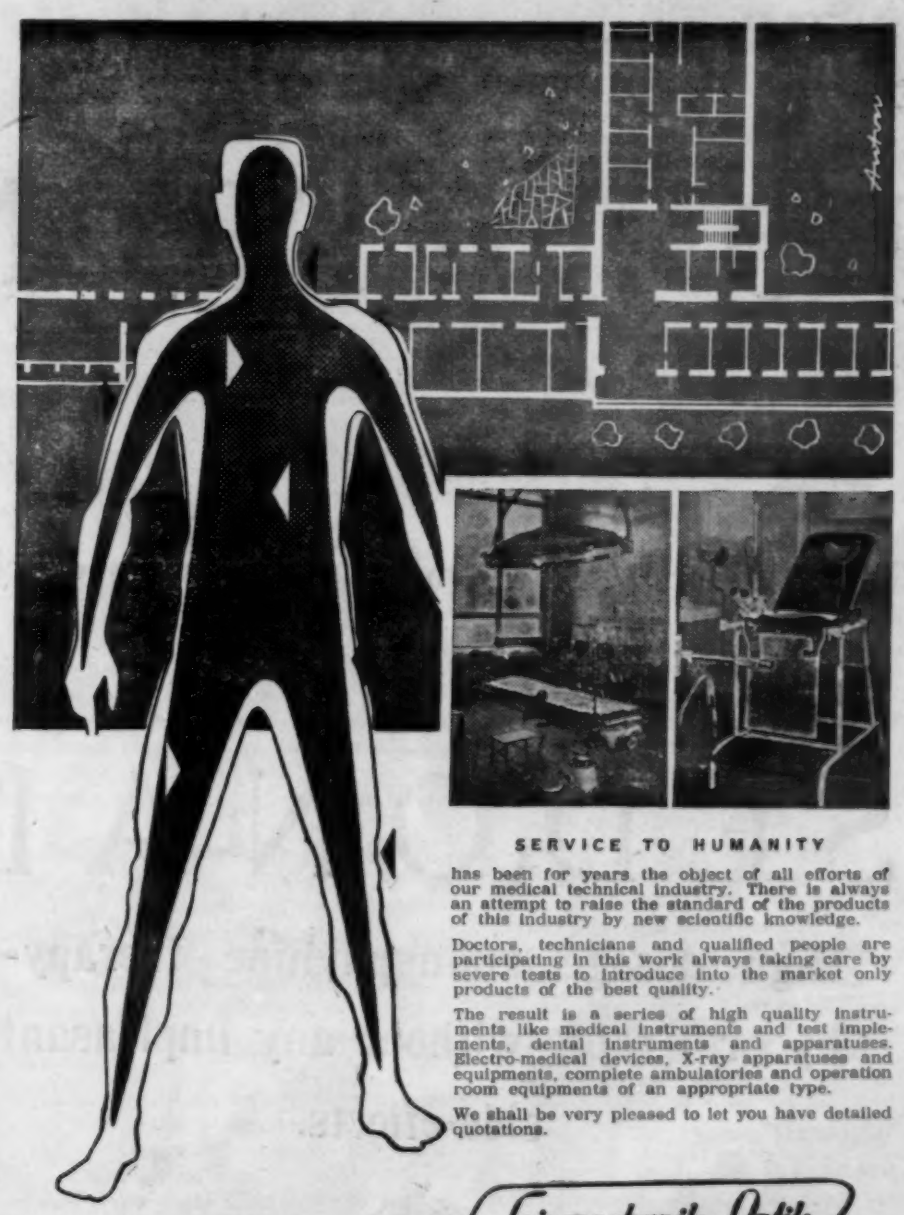

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Journal of the Indian Medical Association

VOLUME 30
NUMBER 10

PUBLISHED TWICE A MONTH
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CALCUTTA
MAY 16, 1958

ORIGINAL ARTICLES

DESACETYLMETHYLCOLCHICINE IN THE TREATMENT OF LEUKAEMIA

B. K. DUBE, M.D. (MED.), M.D. (PHARM.), *Reader in Medicine*

AND

S. C. SRIVASTAVA, M.B.B.S., *Demonstrator in Medicine,*

Medical College, Agra

A large number of chemotherapeutic drugs are at present available for the treatment of leukaemia. They control the proliferative process in different ways, but none of them have been found very safe.

Drugs found useful in the treatment of *acute leukaemias* are:

1. Radiomimetic agents, like nitrogen mustard, tri-ethylene melamin, urethane, myelaran and 'colcemid' (desacetylmethylcolchicine) (first used by Moeschlin *et al*, 1953 and then by Leonard and Wilkinson, 1955).
2. Hormones like cortisone and A.C.T.H.
3. Antimetabolites like aminopterin, amethopterin, amino-en-fol, adnopterin and aminoterapterin.

For *chronic myeloid leukaemia* purine antagonists were first used by Burchenal and Karnofsky (1951). 6 : mercaptopurine is the most potent drug of this group.

Our present study deals with only the use of 'colcemid' in cases of myeloid leukaemia. Colcemid or desacetylmethylcolchicine is a derivative of colchicine, which had been used in gout from time immemorial but always being quoted as acting empirically. Dustin (1938) and Bucher (1939) worked out its action and described it to have an inhibitory effect on cell mitosis.

Santavy and Reichstein (1950) isolated desacetylmethylcolchicine in a pure form from the mixed alkaloid extract of *colchicum autumnale* and found it to be very little toxic. Its toxicity is 30-40 times less than colchicine (Schar *et al*, 1954).

Moeschlin *et al* (*loc. cit.*) first reported its beneficial effects in chronic myeloid leukaemia and in some cases of acute myeloid leukaemia.

Experiments on rabbits and cats (Lichtman, 1954) proved that it produces the diminution of total leucocyte count in two days after an intravenous administration, though by oral route it took 12 to 14 days to produce this effect.

Leonard and Wilkinson (1955) reported the use of colcemid in 8 cases of chronic myeloid leukaemia with distinct clinical improvement and in 5 cases of acute myeloid leukaemia with only slight initial improvement.

METHOD AND MATERIALS

In our series we have 15 cases of chronic myeloid leukaemia and 5 cases of acute myeloid leukaemia (Table 1). These cases were either admitted to the wards of S. N. Hospital or were treated privately. As our previous work on its use in different types of leukaemias (1956) established its superiority over other drugs in the treatment of chronic myeloid leukaemia, our present work is limited to myeloid type of leukaemia alone.

Six cases of chronic myeloid leukaemia were treated by colcemid all at one time as an effort

TABLE 1—SHOWING DETAILS OF PATIENTS TREATED WITH COLCHICINE

No.	Age in years	Dose daily (mg.)	Duration of treatment in days	Peripheral blood		Bone marrow Immature cells per cent		Period of remission on 3 mg. daily
				Initial	Final	Initial	Final	
				GROUP A—CHRONIC MYELOID LEUKAEMIA				
1.	33	3-8	16	WBC—96,000/cmm. Imm. cells—48% Hb.—10 g.	WBC—18,000/cmm. Imm. cells——nil Hb.—12 g.	22	10	12 months
2.	41	3-6	20	WBC—163,000/cmm. Imm. cells—66% Hb.—7 g.	WBC—10,000/cmm. Imm. cells——nil Hb.—12·5 g.	52	23	10 months Patient discontinued therapy and readmitted
3.*	32	3-6	18	WBC—89,000/cmm. Imm. cells—50% Hb.—9·4 g.	WBC—3,500/cmm. Imm. cells—6% Hb.—10 g.	39	30	10 months
4.†	35	3-8	21	WBC—214,000/cmm. Imm. cells—52% Hb.—9 g.	WBC—124,500/cmm. Imm. cells—6% Hb.—10 g.	64	56	No response
5.	52	3-6	18	WBC—140,000/cmm. Imm. cells—52% Hb.—11 g.	WBC—20,000/cmm. Imm. cells—nil Hb.—12·5 g.	63	23	12 months
6.	42	3-6	20	WBC—220,000/cmm. Imm. cells—65% Hb.—7·5 g.	WBC—8,000/cmm. Imm. cells—nil Hb.—11·5 g.	58	31	12 months
7.	58	3-6	21	WBC—280,000/cmm. Imm. cells—38% Hb.—10 g.	WBC—16,000/cmm. Imm. cells—nil Hb.—13 g.	42	20	12 months
8.	60	3-8	18	WBC—190,000/cmm. Imm. cells—56% Hb.—9 g.	WBC—20,000/cmm. Imm. cells—nil Hb.—12·4 g.	39	18	10 months
9.	48	3-6	16	WBC—210,000/cmm. Imm. cells—48% Hb.—8·5 g.	WBC—21,000/cmm. Imm. cells—nil Hb.—12 g.	46	28	12 months
10.	32	3-8	21	WBC—152,000/cmm. Imm. cells—40% Hb.—9 g.	WBC—22,000/cmm. Imm. cells—nil Hb.—12 g.	58	22	13 months
11.	55	3-8	20	WBC—390,000/cmm. Imm. cells—40% Hb.—6 g.	WBC—40,000/cmm. Imm. cells—2% Hb.—11 g.	46	25	14 months
12.	42	3-8	19	WBC—150,000/cmm. Imm. cells—48% Hb.—10 g.	WBC—23,000/cmm. Imm. cells—4% Hb.—12 g.	40	18	11 months
13.	30	3-8	14	WBC—180,000/cmm. Imm. cells—45% Hb.—8 g.	WBC—29,000/cmm. Imm. cells—nil Hb.—11 g.	50	22	10 months
14.	48	3-8	12	WBC—210,000/cmm. Imm. cells—59% Hb.—9 g.	WBC—12,000/cmm. Imm. cells—nil Hb.—12 g.	54	28	14 months
15.	38	3-8	16	WBC—180,000/cmm. Imm. cells—45% Hb.—10 g.	WBC—16,000/cmm. Imm. cells—2% Hb.—13 g.	48	20	10 months

* Case No. 3 (Group A) was the only case which showed toxicity

† Case No. 4 (Group A) showed 'fair' clinical improvement. All the other cases in the group showed 'good' clinical improvement.

TABLE 1—*Contd.*

No.	Age in years	Dose daily (mg.)	Duration of treatment in days	Peripheral blood		Bone marrow Immature cells per cent		Period of remission on 3 mg. daily
				Initial	Final	Initial	Final	
				GROUP B—ACUTE LEUKAEMIA				
1.	18	3	16	WBC—60,000/cmm. Imm. cells—67% Plet—60,000/cmm.	WBC—14,000/cmm. Imm. cells—9% Plet.—110,000/cmm.	74	14	5 weeks
2.†	4	1-1½	8	WBC—14,000/cmm. Imm. cells—88% Plet.—80,000/cmm.	WBC—16,000/cmm. Imm. cells—64% Plet.—88,000/cmm.	88	70	No response
3.	3	½-1	12	WBC—24,000/cmm. Imm. cells—70% Plet.—120,000/cmm.	WBC—12,000/cmm. Imm. cells—14% Plet.—220,000/cmm.	90	34	6 weeks
4.	7	1	14	WBC—68,200/cmm. Imm. cells—68% Plet—96,000/cmm.	WBC—21,000/cmm. Imm. cells—12% Plet.—120,000/cmm.	79	10	4 weeks
5.	3½	1	16	WBC—90,000/cmm. Imm. cells—60% Plet.—150,000/cmm.	WBC—12,000/cmm. Imm. cells—8% Plet.—280,000/cmm.	80	16	12 weeks

† Case No. 2 (Group B) showed no clinical improvement. The rest of the cases in the group showed 'good' clinical improvement. Toxic effects were not seen in any of the cases in Group B.

was made to collect this number of cases before starting the drug. All these cases were followed closely for a period of six months by keeping them in the wards. Later on they were directed to continue the treatment and report for their check up and blood count every fortnight. Other cases of this series were treated as they came and were kept in the hospital for periods varying from 3 to 4 months and were also advised to report every fortnight. Only 10 cases of the series are being traced up to the present date (14 months) and 4 cases who could not continue the treatment for more than 10 months have again been admitted with a relapse of symptoms and are being treated similarly.

Dosage—The dose was 1 mg. thrice a day for 4 days. Then it was increased gradually by 2 mg. a day till a total of 8 mg. a day was reached. This was maintained till the count came down to 20,000 c.mm. and then it was stopped for 3 days and then maintained at 3 mg. a day.

A regular check-up was maintained by blood count and bone-marrow pictures besides a record of clinical improvement and decrease in splenic enlargement.

OBSERVATION

Acute leukaemia—Of 5 cases in which colcemid was given, only 2 cases showed some response. The leucocyte count was considerably reduced and bone-marrow picture also showed increased number of mature cells and there was marked improvement clinically. The remissions lasted from 1 to 3 months. In the remaining 3 cases the result was poor without any improvement in either peripheral blood picture or bone-marrow or in the clinical condition (Table 1).

Chronic myeloid leukaemia—Out of 15 cases, 2 had a course of deep x-ray therapy one year back and were admitted with relapse of symptoms, and 2 cases had become resistant to treatment by myleran. Eleven cases had not received any previous treatment.

Four cases which were first treated 10 months back received a second course of treatment. In all these cases there was a definite clinical improvement, the spleen steadily reduced in size and in most of them it was barely palpable after 1 to 1½ months' treatment. The peripheral blood picture showed marked improvement. A remarkable feature was that in several cases there was a complete disappearance of immature cells from the peripheral blood. The total R.B.C. count and Hb. per cent of the blood and the platelet count showed a considerable increase. In some cases the picture completely returned to normal. Marrow biopsies after treatment showed reduced cellularity and fewer promyelocytes and myelo-

cytes, but the over-all picture did not differ from that of chronic myeloid leukaemia. In 2 cases the clinical improvement was not satisfactory though the W.B.C. count was reduced and there was also a reduction in the size of spleen.

It was observed that at least 6 to 8 mg. of the drug daily was needed for a period of 10 to 20 days to produce a reduction in the total W.B.C. count. As soon as the count came down to the neighbourhood of 20,000 c.mm. a maintenance dose of 3 mg. a day was necessary to keep it under control. If the drug could not be continued the count had a tendency to rise again and the size of spleen also increased along with it. Those cases which could not follow the treatment for some length of time came back with a relapse after 6 months and in the next course the total length of time and the quantity of the drug required to bring down the count and to produce clinical improvement was greater than needed in the first course.

One case in this group is rather interesting. The patient aged 32 years had an initial W.B.C. count of 89,000/c.mm. He was given an optimal therapeutic dose of 8 mg. daily for two days which was later reduced to 6 mg. daily and maintained for 6 days. During this period the patient was showing clinical and haematological improvement but suddenly developed signs of toxicity, e.g., vomiting, congestion of the throat and fever and the blood count came down to 9,000/c.mm. The drug was immediately stopped and a daily check on the W.B.C. count was maintained. A week later the hair from all parts of the body began to fall with the result that the patient became bald. The count by this time had come down to 3,500/c.mm. and later to 2,800/c.mm. Since no antidote was known, 3 mg. citrovorum factor was given daily. On the third day the patient showed a response to the drug and clinical improvement started, followed by a rise in W.B.C. count which rose to 4,100/c.mm. in 6 days' time and went up to 1,20,000/c.mm. in another 12 days. The hair started appearing in all the bald areas and the patient had almost normal hair in 2 months' time. He was then kept on a dose of 4 mg. a day till his blood count came down to 21,000/c.mm. The drug was again stopped for a week and since then he is getting a maintenance dose of 3 mg. a day for the last 10 months with a W.B.C. count ranging between 14,000/c.mm. and 8,000/c.mm. and a R.B.C. count ranging between 3·9 million and 4·5 million. The spleen and the liver are not palpable and the patient is well enough to perform the normal duties of a school teacher.

Discussion

The results obtained by treating chronic myeloid leukaemia with colcemid are encouraging. It appears that this compound is a more selective granulocyte depressant than other chemotherapeutic agents. The disadvantage of myleran in producing toxic effects on the marrow by causing aplastic anaemia and thrombocytopenia have not been seen so far. In every case there has been a rise in R.B.C. count, Hb. and blood platelets. The beneficial effect of the drug can be maintained by a small maintenance dose of 3 mg. a day without any toxic effects for a period of 12 to 14 months (so far observed). Even after the drug is discontinued, the improvement is maintained for a period of 6 months and a second course of the drug is also effective though with a larger quantity of total drug. The clinical effects are just as striking as the effects on the blood, with reduction of splenomegaly, improvement in appetite, and increase in weight and general well being. In our series the patients have remained well over a period of 14 months and are still continuing the treatment.

It has so far been contended that it does not completely eliminate the immature cells from the peripheral blood. We would like to refute this contention as in the majority of our cases no immature cells could be found in the peripheral blood after treatment with this drug. The reduction in total W.B.C. is gradual and progressive. The drug should be used judiciously and the dose properly regulated; otherwise toxic symptoms are likely to develop due to cumulative action, as the W.B.C. count continues to decrease for several days after the treatment is discontinued. It is perhaps for this reason that Leonard and Wilkinson (1955) advise stopping of treatment for a few days when the count came down to 25,000/cmm. No antidote of the drug has been described so far. In one of our cases who developed severe toxaemia with leucopenia we tried citrovorum factor with remarkable results. Though one case is not sufficient to indicate the effectiveness of this factor in toxicity caused by colcemid yet it is worth a trial in such an emergency. The maximum remission in these cases has been 14 months so far, and the cases are still under observation and have not relapsed.

Summary and Conclusion

The effect of desacetylmethylcolchicine (colcemid) has been observed on 15 cases of chronic myeloid leukaemia and 5 cases of acute leukaemia.

Colcemid is found to be of great value in chronic myeloid leukaemia, due to a selective depressant action on granulocytes with an increase in the R.B.C. count, Hb. and blood platelets. The peripheral blood picture returned to normal in most cases.

The clinical improvement was equally dramatic and was maintained on a small maintenance dose for a period upto 14 months and lasted for 6 to 8 months even after discontinuation of the drug.

Toxic effects were seen in one case but could be controlled by the use of citovorum factor.

It failed to produce any beneficial effect in acute leukaemia.

ACKNOWLEDGMENTS

I thank Dr. P. N. Wahi, Principal, Medical College, Agra and Dr. Parma Nand, Superintendent, S. N. Hospital for permitting me to publish this work. I also thank M/s. Ciba Pharmaceuticals Ltd. for the supply of colcemid for trial.

REFERENCES

BUCHER, O.—*Ztschr. Zellforsch.*, **29** : 283, 1939.
BORCHENAL, J. H. AND KARNOFSKY, E. N.—*Cancer*, **4** : 549, 1951.
DUSTIN, A. P.—*Arch. exper. Zellforsch.*, **22** : 395, 1938.
LEONARD, B. J. AND WILKINSON, J. F.—*Brit. M. J.*, **1** : 874, 1955.
LICHTMAN—Leukaemia Research, 1954, J. A. Churchill, London, p. 216.
MOESCHLIN, S., MEYER, H. AND LICHTMAN, A.—*Schweiz. med. Wchnschr.*, **83** : 900, 1953.
SANTAVY, F. AND REICHSTEIN, T.—*Helvet. chim. acta.*, **33** : 1606, 1950.
SCHAR, B., LOUSTALOT, P. AND GROSS, F.—*Klin. Wchnschr.*, **32** : 49, 1954.
SCOTTS, R. B.—*Quart. J. Med.*, **8** : 127, 1939.

DIETHYLCARBAMAZINE IN TROPICAL EOSINOPHILIA

B. S. RAHEJA, M.D.

Bombay

INTRODUCTION

The syndrome of tropical eosinophilia attracted widespread attention of the medical profession when Weingarten in 1943 described a large series of such cases and noted their response to arsenic. Organic arsenical preparations have since then been regarded more or less specific in the treatment of this condition.

Some cases, however, fail to respond to arsenic, while there are others who cannot take arsenic in any form even in very small doses. After Ganatra and Lewis (1955) published their experiences with diethylcarbamazine, I was myself a victim of the above condition and being intolerant to arsenic, tried it on myself with remarkable success (Raheja, 1957). Since then I have used the drug on a number of cases which I am presenting in this report.

For inclusion in this series, the following criteria were considered essential : (a) typical clinical picture ; (b) total circulating eosinophils of 2000/c.mm. or more.

DRUG AND DOSAGE

All patients were treated with diethylcarbamazine. It is a drug of the piperazine group and has been widely used with success against various forms of filariasis.

The dosage in each case was calculated on the basis of 13 mg./kilo body weight, as suggested by Ganatra and Lewis (1955). This was given in three equally divided parts and the drug was given for four days only. Some patients had spread the total dosage to seven or eight days instead of completing the course in four days. It was felt that nothing was gained by this procedure but instead relief was unnecessarily delayed. Before taking diethylcarbamazine, two cases (Case 1 and Case 17) had also taken chlortetracycline (aureomycin) ; one case (Case 1) A.C.T.H. and Case 17, prednisone. Chlortetracycline failed completely in both, while A.C.T.H. and prednisone gave them partial and temporary relief.

MATERIAL

Between January 1956 and the first week of May 1957, a total of 34 cases of tropical eosinophilia was treated with diethylcarbamazine, details of which are given in Table 1. It will be seen that five of them were also suffering from ascariasis, and one was harbouring vegetative forms of *Entamoeba histolytica*. Case 4, who had a relapse after three months, was found on further investigation to be suffering from amoebiasis. Two cases had hypertension and one diabetes mellitus and one pregnancy (3rd month). One case (Case 9) noticed swelling of the feet after a period of about nine months. This was clinically thought to be due to filariasis and responded to diethylcarbamazine.

Of the 34 cases, ten were females. The youngest member of the series was six years, while the oldest was 56 years. Age, sex, race,

TABLE 1—SHOWING DETAILS OF THE CASES

Case No.	Age/Sex	Leucocytes per c.mm.	Eosinophils per c.mm.	Severity of signs and symptoms	Day of relief noted	Day of complete relief	Side effects	Remarks
1.	35/M.	37,500	29,250	++++	2nd	4th	Giddiness and leucopenia for over 3 months	Four previous attacks. Extremely intolerant to arsenic
2.	36/M.	13,250	4,240	++	7th	13th	Nil	Rise of temp. with arsenic
3.	6/M.	16,500	2,465	++	6th	11th	Nil	One previous attack Passed 4 roundworms on 5th & 2 on 6th day
4.	38/F.	12,500	2,375	++	5th	8th	Nil	Two previous attacks
5.	19/M.	22,600	14,916	++	6th	8th	Nil	Relapse after 3 months *E. histolytica* seen
6.	16/M.	12,700	4,953	++	4th	8th	Nil	—
7.	7/M.	26,000	11,960	++	5th	9th	Nil	— Passed 2 roundworms on 6th, 2 on 8th day, and 3 more with santonin given later Total dose spread to 7 days
8.	21/M.	8,100	2,106	++	No relief		Nil	Failure
9.	6/M.	35,350	24,357	+++	4th	6th	Drowsiness	Developed cough and swelling of feet 9 months later
10.	38/F.	14,900	6,407	+++	5th	7th	Drowsiness Giddiness	Diabetic
11.	14/F.	18,600	9,672	+++	6th	11th	Nil	Passed 2 roundworms on 3rd day and one on 4th day
12.	55/M.	10,000	5,100	++	6th	8th	Nil	One previous attack
13.	27/M.	14,000	6,440	+++	5th	7th	Nil	Two previous attacks
14.	24/M.	16,250	8,450	+++	4th	8th	Nil	One previous attack Intolerant to arsenic
15.	21 /M.	10,800	6,372	++	5th	7th	Nil	Complaints for over 6 months
16.	56/F	22,100	16,834	+++	4th	8th	Nil	—
17.	48/M.	24,250	13,095	++++	8th	16th	Giddiness	Three previous attacks Extremely intolerant to arsenic Hypertensive
18.	31/M.	19,650	8,056	+++	6th	9th	Nil	—
19.	21/F.	18,200	6,188	++	7th	11th	Nil	Passed 1 roundworm on 8th day
20.	51/M.	16,500	5,445	++	4th	8th	Nil	One previous attack Intolerant to arsenic
21.	36/M.	16,150	7,752	+++	7th	15th	Nil	One previous attack
22.	28/F.	22,500	13,050	++	6th	14th	Nil	—
23.	50/M.	46,000	34,960	++++	6th	9th	Nil	Two previous attacks Intolerant to arsenic
24.	49/M.	29,000	23,060	+++	3rd	9th	Nil	Hypertensive
25.	27/F.	12,600	4,284	++	3rd	8th	Drowsiness Giddiness	Pregnant (3 months)
26.	34/M.	12,500	2,625	++	3rd	9th	Nil	One previous attack

TABLE 1—*Contd.*

Case No.	Age/Sex	Leucocytes per c.mm.	Eosinophils per c.mm.	Severity of signs and symptoms	Day of relief noted	Day of complete relief	Side effects	Remarks
27.	6/F.	16,600	5,143	+++	5th	9th	Nil	—
28.	7/M.	19,000	9,880	+++	4th	6th	Nil	Glands palpable in groin
29.	14/M.	21,000	17,010	+++	5th	8th	Nil	—
30.	8/F.	19,350	11,030	+++	No relief		Nil	Failure Had vegetative *E. histolytica* and ova of ascaris
31.	26/F.	22,400	14,784	+++	5th	7th	Nil	Two previous attacks
32.	31/M.	10,000	3,000	+++	3rd	7th	Nil	—
33.	28/M.	27,000	20,250	+++	3rd	8th	Nil	—
34.	48/M.	19,000	15,770	+++	4th	12th	Nil	Three previous attacks Intolerant to arsenic

social status or occupation did not seem to be of any aetiological significance. Cases were seen all the year round. Three cases had come to Bombay from other states. Thirteen of these 34 cases had suffered from the disease previously ; six of them were having the disease for the second time, four for the third time, two for the fourth time and one for the fifth time. All these attacks were seen during the past seven years. At least seven of these thirteen were intolerant to arsenic.

In this series the highest eosinophilic count observed was 34,960/c.mm. and the lowest 2106/c.mm. The highest percentage seen was 81 and the lowest 19. It was observed that the degree of eosinophilia might not be an indication of the intensity or severity of the condition.

RESULTS

Results have been assessed on the clinical grounds, as it was not possible to have the blood examinations done repeatedly especially when the patients were free from disease. In a few cases in which it was done, it was seen that the clinical improvement and the reduction in the circulating eosinophils did not necessarily go hand in hand and that the circulating eosinophils might take a considerable time to return to normal.

In this series, there were two failures while the response in the rest of 32 was satisfactory and they were completely cured. In the majority of them improvement was dramatic while in others it was slow and gradual. Earliest relief was noted on the second day and the latest on the eighth day (average 4·88 days). 21 out of 32 noted relief on or about the fifth day. Complete relief was obtained between 4th and 16th day (average 9th day). 24 out of 32 cases were cured on or before 9th day.

The drug was found to be free from any serious side-effects. Except for minor reactions like giddiness (noted in four cases) and drowsiness (noted in three cases) no other untoward reactions were seen. One patient developed leucopenia which persisted for over three months.

DISCUSSION

Out of 28, cases, Chaudhuri *et al* (1956) had 3 failures while in five others the results were indeterminate. The response according to them was striking in the majority of cases, relatively slow in some, while some were refractory. Ganatra and Lewis (1955) recorded 2 failures out of 13 cases. Their cases felt better soon after the completion of four days' therapy and had complete relief within 20 days. Sivaraman (1956) tried diethylcarbamazine in a limited number of cases with very satisfactory results. Beneficial effects were noticeable on the fith day and were obvious by about the 9th day. Desai (1956) also noted improvement during the first week and this was complete within two or three weeks.

Of the two failures (Cases 8 and 30), Case 30 was also suffering from amoebiasis. After she failed to respond to diethylcarbamazine, she was put on antiamoebic treatment. Relief was noted in this case on the sixth day of the above therapy. Case 4 had a relapse after 3 months. It was then found that she was suffering from amoebiasis. She responded to a course of emetine.

SUMMARY

34 patients of tropical eosinophilia were treated with diethylcarbamazine. 32 of them were cured while in 2 the treatment failed. One case of failure responded to antiamoebic drugs.

Relief was noted between second and eighth day (average 4·88 days) and complete cure between fourth and sixteenth day (average 9th day).

Except for giddiness (noted in 4 cases) and drowsiness (noted in 3 cases) no other untoward reactions were seen.

REFERENCES

CHAUDHURI, R. N., RAI CHAUDHURI, M. N., SEN, P. AND BASU, S. P.—*Bull. Calcutta School Trop. Med.*, **4** : 150, 1956.

DESAI, M. N.—*J. Indian Med. Profession*, **3** : 1189, 1956.

GANATRA, R. D. AND LEWIS, R. A.—*Indian J. M. Sc.*, **9** : 672, 1955.

RAHEJA, B. S.—*Antiseptic*, **54** : 364, 1957.

SIVARAMAN, C. H.—*Kasturba Med. College Mag.*, **3** : 29, 1956.

WEINGARTEN, R. J.—*Lancet*, **1** : 103, 1953.

PRACTITIONERS' SERIES

DIAGNOSIS AND MANAGEMENT OF LEUKAEMIAS

J. B. CHATTERJEA, M.D. (CAL.)

Professor of Haematology
School of Tropical Medicine
Calcutta

Leukaemias in general are divided into two broad groups, acute and chronic, depending on the degree of differentiation and the rate of proliferation of the cell type involved. These two groups differ from each other in their mode of onset, clinical eourse and period of survival. The treatment in the two groups is also different.

DIAGNOSIS

CLINICAL FEATURES :

Acute leukaemias—The presenting features of acute leukaemias are unexplained fever, ulcerations in the mouth, tongue or fauces, haemorrhages in the skin or from mucous surfaces of the body, bone pains and rapidly developing anaemia in the absence of haemorrhage, haemolysis or nutritional failure. These are usually but not always associated with varying grades of splenomegaly and lymphadenopathy. Sometime one or other symptom may predominate. Hyperplasia of the gums, like that seen in dilantin sodium poisoning, is a characteristic feature of monocytic leukaemia. Sternal tenderness is often present. The secret of early diagnosis of leukaemia is to suspect it particularly when the above symptoms are seen in children or in young adults. Infectious mononucleosis, idiopathic thrombocytopenic purpura, agranulocytic angina, aplastic anaemia and occasionally nutritional macrocytic anaemia may clinically mimic leukaemia. All these conditions can be easily excluded and diagnosis of leukaemia established by examination of blood and bone marrow.

Chronic leukaemias—The onset of chronic leukaemia is usually insidious. Common manifestations are weakness and anaemia, irregular fever with or without night sweats, bleeding from cutaneous or mucous surfaces, bone pains, splenomegaly and lymphadenopathy. These features may present singly or in combination and not infrequently one or other of these features may predominate. At times, presenting features may be pressure symptoms, caused by the enlarged spleen, liver or lymphnode. Atypical cases are on record where the patient first consulted a dentist for gum bleeding or an ophthalmologist for dimness of vision consequent on retinal or vitreous haemorrhage. Question of leukaemia should be particularly reviewed in instances of refractory anaemia, unexplained haemorrhages, splenomegaly and lymphadenopathy. Sternal tenderness may be present in chronic myeloid leukaemia and localised bony tenderness in multiple myeloma. Clinical suspicion needs confirmation by blood and bone marrow pictures.

LABORATORY DATA :

Blood—The single examination of inestimable value in the diagnosis of leukaemia is a careful study of peripheral blood smear. The important things to look for are presence of immature cells, particularly the 'blast cells', preponderance of one particular type of cell and leucocytosis in general. Cases showing extreme leucocytosis with too many immature cells are easy to diagnose. The diagnosis is, however, relatively difficult when the total W.B.C. count is only slightly increased, normal or decreased. In these conditions careful search will usually show 'significant cells' suggest-

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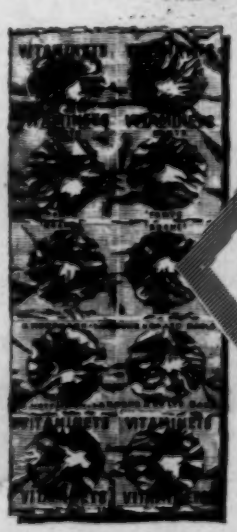

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ing the diagnosis. Thrombocytopenia is a regular feature of acute leukaemias and should be looked for as a corroborative evidence in favour of the diagnosis. Occasionally the leukaemic process may be 'truly aleukaemic', peripheral blood containing either too few or no 'leukaemic' cells.

Bone marrow—In an average case of leukaemia, diagnosis is made from the peripheral blood ; and bone marrow examination readily and unequivocally confirms the diagnosis. In multiple myeloma, aleukaemic leukaemia, and in atypical and cryptic types, bone marrow examination is essential to establish the diagnosis. Bone marrow picture being characteristically distinctive, the value of bone marrow examination in the diagnosis cannot be overemphasized.

In atypical cases, care should be taken to exclude 'leukaemoid reactions' for which there must be some definite cause, viz., infections, neoplasias (localised or generalised), metabolic dyscrasias, etc. Occasionally clear-cut diagnostic picture may not be available at the time of first observation ; in such a situation follow-up study will be necessary to settle the diagnosis. The term 'preleukaemic' leukaemia has been used to describe such a condition.

Splenic puncture may be helpful in the diagnosis of atypical cases.

While diagnosis of leukaemia is not difficult, recognition of the type of leukaemia is sometimes difficult. Morphological criteria, supplemented with peroxidase staining and if necessary phase-contrast microscopy, when interpreted in the light of total cell population in blood and bone marrow are fairly dependable in the differentiation of type. In doubtful cases, true identity of the type is not usually revealed until sometime has elapsed since the first observation. With the advent of specific chemotherapeutic drugs effective only against a particular type of leukaemia, it is essential that diagnosis of the type of leukaemia is made as precisely as possible. The contention that acute leukaemias, for therapeutic purposes, need not be differentiated any further, is not warranted by available clinical and experimental data.

MANAGEMENT

I. ACUTE LEUKAEMIA :

Main principles in the management of acute leukaemia may be grouped under : (1) Non-specific general measures ; (2) control of the proliferative process by specific chemotherapy ; (3) control of haemorrhages and anaemia by blood transfusion and (4) control of infection by antibiotics.

1. *General measures*—Details will vary according to the specific requirement of the individual patient. In view of the gloomy outlook, every attempt should be made to keep the patient as comfortable and as cheerful as possible. No routine need be followed rigorously and the patient's desires and inclinations should be given due consideration. Many of the unfortunate patients are children who would need the special attention that their age and environment demand.

(a) Rest : Bed rest should be enforced in patients with moderate to high fever, in cases with severe anaemia and during haemorrhage.

(b) Diet : The diet should be well-balanced and nourishing with high caloric value. Particular care should be taken to make the diet palatable and in the selection of diet wish and inclination of the patient should be respected.

(c) Oral hygiene : The mouth should be washed and cleansed before and after each meal with a mild antiseptic lotion. Use of hard tooth brush should be avoided.

(d) Bowel movement : Regular movement of the bowels is desirable. If necessary, mild laxatives may be used but not drastic purgatives.

2. *Control of proliferative process*—Of the various agents so far employed, only antimetabolites and steroid hormones have proved useful in controlling the proliferative process. Commonly used drugs are : (a) Folic acid antagonists (aminopterin, amethopterin). (b) Steroid hormones (ACTH, cortisone or their recent substitutes prednisone and prednisolone). (c) Purine antagonists (6-mercaptopurine).

(a) Folic acid antagonists : The observation that folic acid accelerated the leukaemic process led to the trial of numerous analogues of folic acid. Folic acid analogues act as antimetabolites by replacing the essential metabolite folic acid in enzyme systems involved in the synthesis of nucleic acid. Folic acid analogues readily combine with folic acid enzyme systems presumably due to their similar chemical structure. However, their structure not being exactly alike, the enzyme systems are sooner or later blocked and utilisation of folic acid prevented, leading to the deficiency of folic acid in the system. Of the various folic acid antagonists tried so far, aminopterin (4, aminopteroyl glutamic acid) and amethopterin (Methotrexate ; 4, amino, N_{10} methyl pteroyl glutamic acid) are the two most potent preparations that have been widely used.

Aminopterin is usually given orally, its application by the intramuscular route being reserved for very severe cases. Initial daily dose for a child is 0·5 to 1·0 mg. (1-2 tablets); adults may receive up to 2 mg. daily. Therapy is continued till there is a remission when the drug may be continued cautiously in smaller maintenance dosage. Depending upon the response, the drug may be withdrawn when a steady state of remission has been attained. During treatment with aminopterin, it is imperative to watch for toxic symptoms which may be very severe and even fatal. The toxic symptoms include necrotic ulcerations in the mouth and gastro-intestinal tract, haemorrhages from any part of the body, severe bone-marrow depression with pancytopenia and alopecia. At the onset of the toxic symptoms the drug should be stopped and treatment with citrovorum factor (5-15 mg. daily) instituted. A careful watch for the early toxic symptoms and serial blood and bone-marrow examinations will prevent undesirable toxic manifestations. Gross renal dysfunction predisposes to toxic reactions; hence extreme caution should be exercised in the use of these drugs in such a situation. Aminopterin is most suitable in acute lymphatic leukaemia in children, where temporary remission lasting for 3 to 32 weeks with almost complete normalisation of blood and bone marrow pictures and associated with distinct clinical improvement has been noted in about 50 per cent of cases. More than one remission has been noted in a few cases but response to treatment with the same drug is usually less satisfactory in the second and subsequent courses. Response in acute myeloid leukaemia is less pronounced and there is usually little or no response in monocytic leukaemia. Response in adults is much less striking.

(b) Steroid hormones: These hormones well-known for their regressive effect on lymphatic tissues have been found to be effective in leukaemias particularly in the acute lymphatic leukaemia of children. Like aminopterin the action of the hormones in adults is much less striking. The hormones are useless, if not contraindicated, in the treatment of acute myeloid and monocytic leukaemias. In children ACTH is usullay given intramuscularly in the dosage of 40 mg. daily in 4 divided doses and cortisone is usually given orally in the dosage of 100 mg. daily in 4 divided doses. Equivalent dosage of prednisone or prednisolone (10-15 mg. daily) appears to be preferable to ACTH or cortisone. Temporary remission lasting from 1 to 12 weeks may ensue in 50 per cent of cases. Treatment with the hormones may have to be continued for 4 to 5 weeks in order to produce a significant remission. Maintenance therapy usually in the form of one half to one quarter of the maximum therapeutic dosage may be given to prolong the period of remission. Compared to aminopterin, remission is probably less frequent and less sustained. During hormone therapy, all the usual precautions against the possible metabolic disequilibrium should be taken.

Both aminopterin and the steroid hormones are useful only in the acute lymphatic leukaemia of children. It should, however, be noted that whereas aminopterin depresses the appetite and is potentially a myelotoxic drug, the hormones stimulate appetite and are essentially myelostimulatory. When the general condition of the patient is very low, it is sometimes preferable to begin therapy with steroid hormones which may be later followed by folic acid antagonists. Some authorities advocate a combined therapy with a view to secure a better remission. In the combined therapy the myelotoxic action of aminopterin is counterbalanced by the myelostimulatory action of ACTH and/or cortisone. In favourable cases, 3 or more remissions may be obtained with the combined therapy. Unfortunately these agents do not always produce the desired effect and ultimately proliferative process can no longer be controlled by either of the drugs and the disease proceeds on to its inexorable march to fatal termination.

(c) Purine antagonists: Purine antagonists are the fruits of planned investigation into antimetabolites with the potentiality of controlling neoplastic proliferation through the blockage of nucleic acid synthesis. Of the many compounds so far available, 6-mercaptopurine (6—M.P.) has proved to be the best. The drug (available as 50 mg. tablet) is given orally in doses of 2·5 mg./kg. body weight daily for 3 to 6 weeks or more when usually a remission lasting for from 1 to 9 months may be obtained in about 40 per cent cases of acute leukaemias in children. The drug is moderately effective both in lymphatic and myeloid types and is also partially effective in monocytic leukaemia in children. The drug has also proved beneficial in adults. The compound has been effective in some cases resistant to folic acid antagonists or hormones. Patients, however, soon develop resistance against the drug. There is, however, no cross resistance between these drugs and anti-folic acid compounds.

X-rays, radioactive materials, nitrogen mustards (HN_2 or TEM) are useless, if not harmful, in the treatment of acute leukaemias.

3. *Control of haemorrhages and anaemia*—Progressive and rapidly developing anaemia as

also haemorrhages from the mucocutaneous surfaces are two common complications which are best treated by transfusion of blood. When severe anaemia is the main problem, transfusion of red cell mass is preferable, but for the control of haemorrhages only freshly collected blood should be transfused. Transfusion should be liberally given as and when necessary with a view to maintain red cell and haemoglobin levels at an optimum level. Liver extracts and vitamin B_{12} are usually useless and iron therapy (oral/parenteral) is indicated only in a few cases where the anaemia may be partially due to haemorrhage. Folic acid is contraindicated.

4. *Control of infection*—Leukaemic proliferation causes severe interference with granulopoiesis and the inevitable result is peripheral neutropenia (affecting mature or active neutrophils) predisposing to infection. Penicillin in appropriate dosage is the best drug to control these infections. Penicillin should be used freely whenever there is fever and other signs suggestive of infection. Broad-spectrum antibiotics may be used when there is infection with organisms non-sensitive or resistant to penicillin.

II. CHRONIC LEUKAEMIA :

In chronic leukaemias, onset is usually insidious and the progress gradual. Remissions are frequent with or without treatment particularly during the earlier period of the disease. The patient usually survives from 2 to 5 years or more. The average span of life is about 3½ years in chronic myeloid and more in chronic lymphatic variety. The disease may terminate in "blast crisis" and end fatally within a short time or the patient may die of intercurrent infections.

Outlines of treatment in chronic leukaemias may be conveniently discussed under (i) general measures, (ii) control of the proliferative process, (iii) control of anaemia and haemorrhages, (iv) control of associated infection and (v) psychotherapy and mode of life.

1. *General measures*—

(a) Rest: Rest should be enforced in the presence of intercurrent infection, severe anaemia and during an attack of haemorrhage. Ordinarily the patient should be encouraged to do as much work as is compatible with his state of health.

(b) Diet: Adequate nutrition should be maintained by a well balanced diet which must include varieties and meet patient's inclination as far as possible. A well nourished patient is probably less susceptible to the depressant action of myelotoxic drugs. The claim that limitation of dietary proteins to 50 g., deletion of fats and interdiction of high nucleoprotein foods are clinically helpful in chronic lymphatic, monocytic and chronic myeloid leukaemia respectively has not been proved.

2. *Control of the proliferative process*—In the earlier stage of the disease, satisfactory remissions are easily obtained by a large variety of therapeutic measures. These include radiotherapy in the forms of deep x-rays, radioactive phosphorus (P^{32}) and chemotherapy in the form of arsenic, urethane, HN_2, TEM, myleran. Folic acid antagonists and steroid hormones have little or no effect in chronic leukaemias.

Indications for therapy: Treatment must be given when a confident diagnosis has been made and symptoms and signs attributable to leukaemia are present. When there is any doubt regarding the diagnosis, treatment should be withheld until a definite diagnosis has been made. In general, chronic myeloid leukaemia requires treatment when a definite diagnosis has been made but not chronic lymphatic leukaemia, particularly in old age. Chronic lymphatic leukaemia is the most benign form of leukaemia and these patients may live well for 2 to 5 years or more without any specific treatment. In such cases without definite symptoms, deep x-rays or other antimitotic drugs should not be given, as injudicious therapy may accelerate the proliferative process beyond easy control. (In contrast, an average case of acute leukaemia will, on diagnosis, always need treatment).

Radiotherapy :—

(a) Deep x-rays continue to be the therapy of choice particularly in cases with high leucocyte counts. Local irradiation directed to the enlarged spleen or to the lymph nodes is the usual way in which the radiation therapy is employed. Details of dosage and frequency of exposures depend on the clinical and haematological status of the patient and varies to some extent with different radiologists. In an average case 100 *r* may be given on three consecutive days to be repeated for the 2nd, 3rd, or 4th courses depending upon the patient's clinical and haematological responses. Interval between the two courses may vary from 5 to 7 days or more. In the majority of cases, satisfactory remission ensues after the 2nd and 3rd courses of therapy with improvement in the general condition, fall in the total leucocyte count, decrease of the immature leucocytes and usually with increase of red cell and haemoglobin. Radiation therapy should be withdrawn when the total

leucocyte count falls to 30,000 per c.mm. or thereabout. The improved status is usually maintained for 1 to 3 months or more. Blood counts should always be done at least weekly during the course of therapy and fortnightly during remission. In cases of relapse, radiation therapy may be re-employed for the 2nd, 3rd or 4th or more times to induce further remissions. But ultimately the leukaemic process becomes radio-resistant when other forms of therapy may be employed with advantage. The disadvantages of radiation therapy are that : (i) it is not available in all places, (ii) it is expensive and (iii) it may induce radiation sickness which is very distressing with some patients. Radiation sickness may be minimised by giving pyridoxine and dramamine or some similar gastric sedative along with a high carbohydrate diet.

(b) Since 1947, some workers have used radioactive phosphorus (P^{32}) in place of deep x-ray therapy. It is given intravenously in doses of 2-3 millicuries each week until the leucocyte count has come down to about 30,000 per c.mm. One advantage of P^{32} over deep x-ray therapy is freedom from radiation sickness. Wide use of P^{32} during the last 8 years clearly shows that P^{32} is in no way superior to traditional deep x-ray therapy. Moreover lack of easy availability in India and high costs preclude its general use.

Contraindications to radiation therapy—In the presence of high fever, severe anaemia and gross haemopoietic incompetence, it is desirable to improve the patient's general and haemopoietic status with bed rest, antibiotics and blood transfusion before institution of radiotherapy. If these symptoms are not controlled and facilities for adequate blood transfusion do not exist, deep x-ray therapy should be started cautiously for controlling the disease.

Chemotherapy—

Arsenic—The first specific drug to be used in the treatment of leukaemia was Fowler's solution (1 per cent solution of arsenic trioxide). Since 1865 it has been found to be effective in the treatment of chronic myeloid leukaemia. By carefully regulating the dose, remissions may be maintained for a considerable time. To start with 3 minims of Fowler's solution is usually given three times a day and the dose is increased by 1 minim daily until signs of toxicity appear when the therapy is stopped for five days and then resumed with a lower dosage. The chief drawback to the use of this drug is that the adverse effects of arsenic toxicity in many cases may be severe enough to outweigh the benefits of therapy. During recent years Fowler's solution has been largely replaced by irradiation and antimitotic drugs.

Urethane—First used in 1946 by Haddow and Paterson as an antimitotic drug, urethane proved useful in the control of chronic leukaemias, particularly in chronic myeloid leukaemia. The drug is partially effective in chronic lymphatic leukaemia and multiple myeloma. It is administered orally usually after light meal, in gelatin capsules or in a syrupy vehicle in the daily dosage of 1 to 3 g. In favourable cases there is clinical and haematological improvement which may be maintained with a lower dosage of ½ to 1 g. a day. Urethane therapy is withdrawn when the total leucocyte count falls below 20,000 and is reinstituted when the total leucocyte count tends to increase. As a cheap and easily available remedy it was widely used until 1954 when urethane was practically replaced by myleran in the treatment of chronic myeloid leukaemia. The disadvantages of urethane are unpleasant side effects of nausea, vomiting, diarrhoea and occasionally drowsiness which may interfere not only with the adequate dosage being taken but also with proper nutrition. It is also a myelotoxic drug and may depress the normal haemopoietic cells and may also cause toxic hepatitis. The drug is now seldom used except in myelomatosis where larger dosage (2 to 4 g.) is useful.

Nitrogen mustards—Developed by the chemical warfare service during Word War II, these agents belong to a group of chlorethane compounds which are extremely reactive chemically. When placed in solution they form a cyclic ammonium cation which after intravenous injection rapidly combines with body tissues (chiefly lymphoid, reticuloendothelial and gastrointestinal mucous membrane), inactivates certain enzyme systems and kills the cells. The cytotoxic action is in many ways similar to that of x-rays. The two commonly used preparations are methyl-bis-B-chlorethylamine hydrochloride (HN_2) for intravenous use and triethylene melamine (TEM) for oral use. Total dosage for a single course is 25-30 mg. of HN_2 and 15-20 mg. of TEM given in 3 to 4 consecutive days for an adult patient suffering from chronic myeloid leukaemia. In chronic lymphatic leukaemia one quarter of the above dosage is usually given as lymphatic tissues are more sensitive to nitrogen mustard. Unpleasant side effects of nausea and vomiting may be minimised by phenobarbitone or dramamine ; chlorpromazine or antihistaminics are useful in this respect.

In favourable cases, nitrogen mustard produces a remission which may last from 4 to 20 weeks

or more. Second or third course may be given depending on the response of the patient and the adequacy of bone marrow. In cases which have proved radio-resistant, nitrogen mustards may be usefully employed to get further remissions.

Myleran (busulphan ; 1, 4-dimethanesulfonyl-oxybutane)—The disulfonic acid esters are much less toxic to the bone marrow than amine mustards. It is cytostatic by virtue of its antimitotic properties. Having selective inhibitory effect on granulopoiesis the drug is useful only in chronic myeloid leukaemia. The drug is available as 2 mg. and 0·5 mg. tablets and is given orally. When the total W.B.C. count is high (over 150,000) treatment is started with 10 mg. daily which is continued till the count falls to 25 per cent of the initial levels ; dosage is then gradually reduced to 4 mg. or 2 mg. daily till a remission is obtained. A second course may be reinstituted when the clinical and haematological findings indicate an imminent relapse. Unlike urethane and nitrogen mustards, the drug has no side effects on the gastro-intestinal tract. But over-dosage may lead to haemopoietic depression. In the treatment of chronic myeloid leukaemia, myeleran is at present the drug of choice. It promises to be a close rival of deep x-ray therapy.

Chlorambucil (CB 1348)—It is the most promising of a large series of aromatic derivatives of nitrogen mustards that has been synthesised and screened. It is p-bis (2-chloro-ethylphenylbutyric acid). The drug is given orally as 2 mg. tablet before meals, 2 to 3 times daily. The initial dose is 0·3 mg./kg./day for a total period of 21 days, which in an average case brings a remission. A second or third course may be given when symptoms of activity recur. The drug which is most useful in Hodgkin's disease is also expected to be useful in chronic lymphatic leukaemia and perhaps also in monocytic leukaemia. This drug is safer and perhaps better than TEM.

Democolcin—A new colchicum alkaloid has recently been shown to produce beneficial results only in chronic myeloid leukaemia. Moeschlin has recommended democolcine for a long term oral therapy of chronic myeloid leukaemia. The initial dose is 4 mg. daily orally which should be slowly increased to 6 to 8 mg. daily and in some severe cases to 10 mg. daily. The drug is stopped for 3 to 4 days after the leucocytes have dropped to 30,000 and then may be resumed at a maintenance level which varies between 3 and 4 mg. in most cases. Side effects are infrequent and minor, viz., alopecia and inhibition of spermatogenesis and possibly ovulation. The drug has been claimed to be useful in some late cases with terminal blast-cell transformation. The drug is contraindicated in chronic lymphatic leukaemia.

3. *Control of anaemia and haemorrhages*—Blood transfusions are indicated to control anaemia with or without neutropenia and thrombocytopenia when these have assumed alarming proportions either before the institution of specific therapy or during the course of therapy with the various drugs which are all potentially myelotoxic. It should be mentioned that for the control of leukaemic anaemia the various antimegaloblastic drugs (liver extracts, and vitamin B_{12}), iron and vitamin C are usually useless. Folic acid is contraindicated. Rational therapy of leukaemic anaemia is early institution of antileukaemic measures reinforced with blood transfusions as and when necessary.

Haemorrhage in chronic leukaemias is not usually severe and may not require blood transfusion. Haemorrhages, during the course of antileukaemic therapy usually results from severe bone marrow depression or coagulation disorder and would require blood transfusion.

4. *Control of associated infection*—Before the antibiotic era infections not infrequently carried away many unfortunate victims. With the appearance of signs and symptoms pointing to infection appropriate antibiotic therapy should be immediately instituted. Penicillin is the drug of choice in an average case, aureomycin and terramycin being reserved for special cases, not responding to penicillin.

5. *Psychotherapy and mode of life*—The attitude of the physician in these cases should be one of encouragement and hope. The fear complex should be dispelled and the patient encouraged to lead, as far as practicable, a normal and useful life. Patients should be encouraged to remain as much ambulant as possible. Habit of remaining in bed predisposes to chronic invalidism and should be condemned. During the periods of remission the patients should be encouraged to return to their normal routine of activities. Temporary rehabilitation and ability to return to normal work would give the patients and their relations an immense psychological stimulation which is the ideal way to remove boredom and prevent introspection.

Importance of psychotherapy in a disease where the very diagnosis will terrify all around cannot be over-emphasised. Realisation of the incurable nature of the disease demands great equanimity for adequate adjustment by all concerned. While the responsible member of the family may be informed of the prognosis as soon as a confident diagnosis has been made, the patient should be apprised of the situation only

at a later date when a satisfactory remission has been obtained. This simple procedure will help to create confidence in the patients and facilitate management.

Scope and Limitation of Therapy

A comparative analysis of the value of various therapies in different types of leukaemia is shown in Table 1. The limitations to the different therapeutic procedures are: (i) The effect of any therapy is only temporary. (ii) Sooner or later the leukaemic process becomes resistant to a particular drug when adoption of a different procedure may result in further remissions. But ultimately after sometime, the leukaemic process can no longer be controlled. (iii) Response to any contemplated therapy cannot always be anticipated and the drug with the best response for any patient has to be found out by trial. (iv) Toxic manifestations sometimes preclude exhibiting the optimum effective dosage.

Table 1—Showing the Effect of Presently Available Therapy on the Different Types of Leukaemia

Therapy	Myeloid		Lymphocytic		Monocytic	Plasmocytic (multiple myeloma)
	Acute	Chronic	Acute	Chronic		
Deep x-ray ...	−	+++	−	++	−	±
HN_2	−	++	−	++	−	−
TEM	−	++	−	++	−	−
Chlorambucil ...	−	−	−	++	±	−
Myleran	−	+++	−	−	−	−
Urethane	−	++	−	+	−	+
Antifolic	+	−	++	−	−	−
Antipurin	+	+	++	−	±	−
Steroid hormones ...	±	−	++	−	−	−
Democolcin ...	−	++	−	−	−	−

The different therapies are sometimes combined to fortify a prolonged and satisfactory remission. Thus in chronic myeloid leukaemia particularly in cases with high leucocyte counts remission obtained with x-rays or nitrogen mustards may be successfully maintained with small dosage of myleran or urethane. In using different antileukaemic measures one should be guided not only by the haematologic status but by the general condition of the patient as well. All the specific therapies are potentially myelotoxic and the need for haematological check up during therapy cannot be overemphasised.

Conclusion

Leukaemias continue to be irreversible processes. No drug can at present cure it. Available therapeutic measures prolong useful life through remissions which though temporary are quite striking. The fact that available therapies can temporarily reverse an irreversible proliferation raises strong hope that further chemotherapeutic success will effect permanent reversal leading to cure of leukaemia. Until then we should endeavour to secure as much comfort and well-being for the patient as circumstances will permit. In the management of this incurable disease, we must at the same time be guided by a spirit of tender loving care, conscientiously attending with due equanimity the essential psychological aspects of the patient and the family.

SPECIAL ARTICLE

DIAGNOSIS OF DISEASES OF CHILDREN IN ANCIENT INDIA

P. M. MEHTA, M.D., M.S., F.C.P.S., F.I.C.S.

Director

Central Institute of Research in Indigenous Medicine

Jamnagar

Impelled by Daruvaha, the aged Jivaka besought Kasyapa seated amidst the sages, regarding the understanding of afflictions suffered by children.

He asked 'By what signs and symptoms is the physician to understand the various kinds of bodily afflictions which children suffer but which they cannot speak out?

Thus besought, the most auspicious and the best among the wise, the sage-physician Kasyapa declared the nature of the various types of afflictions and their causative factors as they affect the bodies of children.

In pain in the head, the child shakes the head very frequently, keeps eyes closed, makes groaning sounds and suffers malaise and insomnia.

In pain in the ear, the child touches the ear often with its hands, turns the head frequently and suffers malaise, anorexia and insomnia.

In affliction of the mouth, there will be excessive salivation, dislike for sucking, malaise and pain, vomiting the milk suckled and heavy breathing in the nostrils.

In affliction of the throat, the breast milk suckled will be immediately vomited out; there

will be constipation by the intake of articles that increase phlegm, low fever, anorexia and depression.

In the affliction of the glossa or tongue there will be salivation, anorexia, depression, pain and swelling over the cheeks, and the mouth is kept gaping.

In spasmodic condition of the throat there will be fever, anorexia, salivation and dyspnoea.

In affliction of the neck there will be swelling of the neck, fever, anorexia and headache.

In fever the premonitory symptoms are—frequent bending of the limbs, yawning and coughing, sudden clutching of the wetnurse, disinclination to suckle, salivation, fever, discoloration, forehead very hot, anorexia and cold feet.

In diarrhoea the premonitory signs are—discoloration of the body, malaise, depression of the face, insomnia, and cessation of the functions of *vata*.

In intestinal colic the child is disinclined to suck, he cries, he lies in supine position and suffers from rigidity of the abdomen, coldness and sweating in the face.

Vomiting—When the child suffers from causeless and frequent belching, drowsiness and yawning, it will be afflicted with vomiting.

Hiccough—The child that breathes very hot breath from its breast, will be afflicted with dyspnoea ; in an emaciated child sudden, windy belches forebode the affliction of hiccough.

Thirst—Excessive sucking of the breast without having satisfaction, thirst, crying, parched lips and tongue, craving for water and debility indicate the affliction of thirst.

Abdominal distension—The child keeps eyes wide open and fixed, has breaking pain in the joints, malaise, exhaustion, obstruction of urine, flatus and faeces, suffers from abdominal distension.

Insanity—Sudden or causeless loud laughter indicates the onset of epilepsy, while excessive muttering, malaise and disturbed mental condition indicate insanity.

Dysuria—Horripilation, body tremors, painful micturition, biting of the lips and repeated touching of the urinary region indicate the affliction of dysuria.

Diabetes mellitus—Heaviness, obstruction, rigidity or numbness, sudden expulsion of urine, and the gathering of flies on the urine which becomes whitish and dense are symptoms of diabetes mellitus.

Piles—In an emaciated child, scybalous digested stools mixed with blood, squeezing of the anus, pruritus and piercing pain in the anal region are symptoms of piles.

Calculus—Sandy and excessive urination, pain during micturition, constant crying and emaciation are symptoms of stone in the bladder.

Acute inflammation—Appearance of red round rashes, thirst, burning, fever, malaise, agreeability to sweet and cold things are the premonitory symptoms of acute spreading inflammation.

Gastro-intestinal irritation—Burning in the limbs, pricking and breaking pains, difficulty in breathing, pain increasingly manifest in the cardiac region are the symptoms of gastro-intestinal irritation.

Intestinal torpor—Inability to hold the head, breaking pain, frequent yawning, no great desire for sucking, vomiting of curdled matter, anguish, distension of the abdomen and anorexia are the symptoms from which intestinal torpor of the child is to be recognised.

It is difficult to differentiate between the symptoms and so also the medication of intestinal torpor and intestinal irritation.

Eye disease—Disturbed vision, swelling, pricking and shooting pains in the eyes, lacrimation, congestion of the eyes accumulation of mucous discharge in eye during sleep are the symptoms of eye disease.

Pruritis—Rubbing the limbs in bed, crying, desire for scratching and dry itching are symptoms of affliction with dry pruritis from which the moist variety develops.

In the moist variety the child feels happy when scratched ; scratching causes swelling and swelling leads to discharge from the swelling accompanied by burning and pain.

Chyme disorder—Stiffness, anorexia, somnolence, pallor of the limbs, malaise, constant dislike for play, food, bed, etc. and also for the wetnurse ; appearing as if washed even though unwashed and appearing as if unwashed even though washed ; these, the physician should recognise as the premonitory symptoms of chyme disorder.

Anaemia—All-round swelling in the navel region, whiteness of the eyes, nails and face occur in anaemia, as also weakness of the gastric fire and swelling of the region of the orbital cavity.

Jaundice—Yellow coloration of the eyes, nails, face and of the faeces and urine occur in jaundice and in both the above conditions the common symptoms are : lack of enthusiasm or energy and loss of gastric fire, blood and the joy of living.

Toxaemia—Fainting, insomnia, vomiting, dislike for the wetnurse, malaise, giddiness and terror, agitation and thirst—by these symptoms one should diagnose in the child the condition of toxicosis.

In coryza, the child repeatedly heaves heavy breathing through the mouth during sucking the breast and has a running nose and burning brows and it touches the nasal passages often and suffers from sneezing and cough. The same symptoms occur in pectoral lesions but there will be more difficulty in breathing.

Insect bite—If the child that is brought up on a proper regimen of health does not sleep at night and has reddish spots on its body it should be regarded as afflicted by insect-bite.

Impending death—When the wetnurse who enjoys all comforts and pleasures and is of a delicate nature, constantly perceives evil dreams, or when there is spontaneous flow of milk from her breasts or when she forgets the child or lets the child drop from her hands or lap, or when she comes into contact with or dines with evil people or with people whose children do not survive, or with people who cannot bear to see the well-being of others' children, or when the wetnurse sees bad omens and is given to bad ways of life and is addicted to injurious habits then it portends that death is approaching the child.

Seizure by evil spirit—If, when the child is asleep, fearful birds fly overhead, or a cat jumps across over the child's body or if the child sniffs the inauspicious smoke from other houses, or sees or crosses sacrificial offerings made to remove the illnesses of other children, or if there is evil odour of the body or the mouth, if there is dirty discharge from the nostrils or if the mother and child put on unwholesome and red colored flower garlands, or if the child climbs up or sits on a heap of ash, coal or husk of grains or if the child gives out a sudden cry or is terrified without cause or undergoes thorough changes in behaviour and body lustre or if the child eating only very little, passes copious urine and faeces or contrarily eating enormously passes scanty urine or faeces—all these must be regarded as premonitory symptoms of the coming afflictions due to seizure by the evil spirit.

End of life—The child who cannot keep its head steady, who has gone weak and tosses its limbs, and who is afflicted with dyspnoea and distension should be regarded as having reached the life's end.

Cure difficult or impossible—If, even when repeatedly cheered, the child shows no cheer, or if it be affected with thirst, drowsiness and sleep and gives out groaning sounds like the cry of a pigeon, and shows other symptoms of fever, vomiting and diarrhoea, the physician should, on seeing these symptoms, regard the condition as difficult or impossible to cure.

Thus have been described by the great sage-physician Kasyapa the various afflictions affecting the bodies of children ; (these being) mostly symptoms of diseases that are about to occur, i.e., the premonitory symptoms of diseases.

REFERENCE

KASYAPA SANHITA—Edited by Vaidya Jadavji Trikamji Acharya and Shomnath Sarma. First Edition, 1938. Chapter XXV, Sootra Sthan.

CASE NOTES

MONOCYTIC LEUKAEMIA

T. N. MATHUR, M.B.B.S., D.T.M., P.C.M.S.

Assistant Bacteriologist
Government of Punjab, Karnal

AND

R. N. SOOD, M.S.M.F. (PB.), L.O. (MADRAS), P.C.M.S.

Assistant Surgeon
I/C Civil Hospital, Nariangarh

INTRODUCTION

Napier *et al* (1943) reported 4 cases of monocytic leukaemia among Indians. Nayak (1943) reported another case on account of its extreme rarity. Reports of monocytic leukaemia (Sen Gupta and Ghosh, 1957; Ganguli, 1957) made us aware of the possibility of this disease. We were fortunate to find a case because we kept the possibility in mind. It is possible that this condition is not as uncommon as it appears to be, but is very often missed by pathologists. The blood smear of our patient was sent to two other pathologists one of whom diagnosed the condition as lymphatic leukaemia and the other myeloid leukaemia. Our diagnosis of monocytic leukaemia was confirmed by the School of Tropical Medicine, Calcutta.

Not only has acute monocytic leukaemia now emerged from a controversial entity since its first description by Reshad and Tergau in 1913 as quoted by Napier *et al* (1943) but its incidence at present is reported to be 8 to 15 per cent of all leukaemias.

CASE REPORT

A 57 year old Punjabi male, was admitted on 16-5-1957 to the Civil Hospital, Nariangarh, with

fever and extreme prostration of a month's duration. The onset of the illness was sudden with a temperature of 103°F. The patient was running continuous fever and was very weak. Previously he had attacks of renal colic in March 1956 and 1957 but no radio-opaque shadow was detected in the kidneys, bladder or ureter.

Examination revealed that he was markedly anaemic, his breath was very offensive, the gums were swollen and bleeding. Haemorrhages were seen on the arms, abdomen and chest. The skin of the right arm was infiltrated. The liver was enlarged 3 fingers breadth below the costal margin and was slightly tender. The spleen was not palpable. No glands were palpable. The lungs showed crepitations.

Examination of blood on 16th May showed a total leucocyte count of 1,36,000 and haemoglobin 5 g. A week later the count was 1,86,000.

Discussion

The diagnosis of acute leukaemia was clear due to the high leukocytic count, fever, anaemia, haemorrhages, spongy gums and foul breath. The nature of the leukaemia was, however, missed by two pathologists. Napier *et al* (*loc. cit*) have said that the cases are missed because most of the cells are blast cells. Gauld *et al* (1953) have drawn attention to the fact that 29·8 per cent cases of acute monocytic leukaemia are aleukaemic. In the aleukaemic phase the disease is particularly liable to be missed. In the cases reported by Sen Gupta and Ghosh (*loc. cit.*) the total leucocytic count was 2,500 in one case and 7,640 to 13,500 in the other case. In the cases reported by Napier *et al* (*loc. cit*) the leucocytic count varied from 8,000 to 78,000 at different times. In our case the count was high 1,36,000 to 1,86,000 and monoblasts predominated with a fair number of monocytes in the peripheral blood smear and the diagnosis was fairly easy. The patient had a fever of 1½ months' duration six months before his final illness. He also had two attacks of renal colic, the first one year before and the second one month before he became acutely sick. In none of the occasions, renal calculus could be demonstrated radiologically. It is possible that the pain was due to bleeding from the kidney, the clot having blocked the ureter had caused the colic. The fever and colic might have been due to leukaemia; so it is difficult to say if the case was one of subacute type with a total illness of 14 months' duration and the high count was only a terminal manifestation of a subacute illness or if it was a case of acute monocytic leukaemia with the fatal outcome coming within six weeks.

Acknowledgment

Our thanks are due to Dr. Jagdish Singh, Director of Health Services, Punjab, for kindly allowing us to publish this case. We are grateful to Dr. J. B. Chatterjea, Professor of Haematology, School of Tropical Medicine, Calcutta, for kindly confirming the diagnosis of monocytic leukaemia.

References

Ganguli, L. K.—*J. Indian M. A.*, **28** : 395, 1957.

Gauld, Wt R., James Innes, H. N. Robson—*Brit. M. J.*, **1** : 585, 1953.

Napier, L. E., Das Gupta, C. R. and Sen Gupta, P. C. *Indian M. Gaz.*, **79** : 1, 1943.

Nayak, K. V., *Ibid*, **79** : 298, 1943.

Sen Gupta, S. N. and Ghosh, J. C.—*J. Indian M. A.*, **28** : 392, 1957.

ATYPICAL CHRONIC MYELOID LEUKAEMIA

SURATH NARAYAN CHAUDHURY, M.D. (CAL.)

Visiting Physician,
Sambhunath Pandit Hospital and
R. G. Kar Medical College and Hospital
Calcutta

In myeloid leukaemia there is hyperplasia not only of the bone marrow but in the liver and the spleen there is also hyperplasia and abnormal leukopoiesis and hence they enlarge enormously. In acute leukaemia death may occur even before the liver and the spleen become clinically enlarged, but in myeloid leukaemia hepatic and splenic enlargement is the rule. It is only on very rare occasions that there is an absence of hepatic and splenic enlargement.

A case of chronic myeloid leukaemia without hepatic or splenic enlargement, till death (the spleen became just palpable a day before death) is reported.

Case Report

M. C. S., Hindu male, aged 51, was admitted to Sambhu Nath Pandit Hospital, Calcutta, on 4-4-57, with the complaints of irregular low grade pyrexia for about six months, extreme weakness and swelling of the legs and abdomen.

There was a past history of chronic dysentery.

On examination he was found to be gravely anaemic, dull and asthenic with the abdomen and the flanks bulged and the umbilicus everted. The liver and the spleen could not be palpated by dipping method. Lymph glands were not enlarged. The nervous and the cardiovascular systems were normal. Lungs showed a few

scattered rhonchi. There was scanty urination. B.P. was 106/70 mm. of Hg. Ophthalmoscopy did not reveal any abnormality (leukaemic deposit).

Laboratory examination (4-4-57)—Hb. (Sahli) 22 per cent (3·19 g. per cent), R.B.C.—2,350,000/c.mm., W.B.C. 10,800/c.mm., neutrophils 67 per cent, lymphocytes 7 per cent, monocytes 4 per cent, eosinophils—nil, myelocytes 7 per cent, metamyelocytes 12 per cent, premyelocytes 2 per cent, myeloblasts 1 per cent and normoblasts a few. Blood count repeated on 7-4-57 revealed almost the same picture.

Urine showed a trace of albumin only.

Peritoneal fluid (6-4-57) was straw-coloured with the presence of cobweb clot, a few R.B.C. and lymphocytes.

Blood biochemistry (9-4-57)—Total protein 5·3 g. per cent, albumin 3·8 g. per cent and globulin 1·5 g. per cent.

He was diagnosed to be suffering from an atypical variety of myeloid leukamia considering mainly the blood picture and absence of evidence of other conditions which may give rise to such a blood picture. His fever came down spontaneously in about ten days' time.

Treatment course—He was given 'neptal' 2 c.c. I.M. on alternate days. On 8-4-57 he was given 280 c.c. of whole blood transfusion. From 9-4-57 elixir urethane one teaspoonful T.D.S. was started. On 13-4-57 280 c.c. of blood transfusion was given. Besides, he was having haematinics, tonics and nourishing food. On 15-4-57 another transfusion of 280 c.c. whole blood was given.

On 17-4-57 his marrow slide report was: Erythropoiesis decreased considerably, mostly normoblasts, showing no significant qualitative change. Megaloblasts—occasional, granulopoiesis—hyperplasia of all the elements, giant meta and stab cells—a few, macropolycytes—a few, eosinophils and lymphopoiesis—no significant change; other cells—none abnormal were seen. Differential count was: Blast cells—3 per cent, promyelocytes—12 per cent, myelocytes—35 per cent, metamyelocytes—20 per cent, neutrophils—5 per cent, eosinophils—5 per cent, lymphocytes—10 per cent, plasma cells—1 per cent, pro-erythroblast—nil, early normoblasts—2 per cent, intermediate—3 per cent, and late—4 per cent. From 20-4-57 'imferron' (intramuscular iron) 1 ampoule daily was started. On 25-4-57 another blood count was done: Hb.—5 g. per cent, packed cell volume—18 c.c. per cent, W.B.C.—1,25,000/c.mm., promyelocytes—3 per cent, myelocytes—25 per cent, metamyelocytes—26 per cent, neutrophils—26 per cent, eosinophils—8 per cent, lymphocytes—12 per cent, a few normoblasts seen. Again on 25-4-57 he was given another transfusion of 280 c.c. whole blood. Oedema of the legs disappeared by this time and fluid in the abdomen also diminished considerably. The liver and the spleen were not palpable. His fasting blood sugar (24-4-57) was 84 mg. per cent.

The dose of elixir urethane was increased to two teaspoonfuls thrice daily on 29-4-57. His haemoglobin rose from 22 to 34 per cent.

From 26-4-57 there was again a rise of temperature and penicillin was started as there was some congestion in the lungs. In spite of the rise of temperature he looked a little better and there was freshness in his appearance. His B.P. was 120/80 mm. Hg. He had the last injection of 'neptal' on 29-4-57. On 5-5-57 another blood count was done and it revealed: W.B.C.—48,000/c.mm. On 6-5-57 the spleen became just palpable. On 7-5-57 his condition all on a sudden took a bad turn. He became restless and there was dyspnoea. He was propped up and I.V. glucose and other restorative measures were resorted to. His condition gradually went downhill and he expired on 8-5-57.

Discussion

Chronic myeloid leukaemia without hepatosplenic enlargement is very rare. Goodman *et al* (1946) published such a case. Craver (1948) mentioned about the occurrence of myeloid leukaemia without any splenic enlargement. Chakraborti (1952) reported a case of chronic myeloid leukaemia without hepatosplenic enlargement. Chronic myeloid leukaemia without hepatic and splenic enlargement should be differentiated from leuco-erythroblastic anaemia. In this case anaemia was very marked and prominent which is one of the main features of leuco-erythroblastic anaemias. Total W.B.C. count is seldom high though a few cases may have high counts. On examinations of the blood film immature red blood cells predominate but myeloid cells are inconspicuous. In this case there was immature R.B.C.. In addition to the typical blood picture, the bone marrow picture was typical of myeloid leukaemia.

Acknowledgment

Thanks are due to Dr. N. Das, Surgeon Superintendent, Sambhunath Pandit Hospital for allowing me to have access to the hospital records.

References

Chakraborty, A.—*J. Indian M. A.*, **21**: 260, 1952.

Craver, L. F.—*J.A.M.A.*, **136**: 244, 1948.

Goodman, L. S., Wintrobe, M. M., Dameshek, W., Goodman, M. J. and McLennan, M. T.—*J.A.M.A.*, **132**: 126, 1946.

JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, MAY 16, 1958

LEUCOCYTE ALKALINE PHOSPHATASE ACTIVITY IN LEUKAEMIA

Biochemical and enzymatic patterns of leukaemic leucocytes are receiving increasing attention of different investigators. Various aspects of this problem have been studied with a view to find out whether leukaemic cells have a distinctive biochemical and enzymatic character significantly different from a leucocyte as seen in normals or in other non-leukaemic conditions. Studies to show functional differentiation include glycolysis and respiration in intact cell and fortified homogenate systems, the location of leucocyte histamine, the enzymatic activities of β-glucuronidase, transaminase, acid and alkaline phosphatase, esterase, and lipase, sulfhydryl constituents, cell amino acid levels, and other attributes of leucocyte under various normal and abnormal conditions[1, 2, 3]. While the precise role of the various studies has not been clearly delineated, it appears that data on alkaline phosphatase activity particularly in neutrophilic granulocytic cells present a differential pattern likely to have a practical application[1-7].

Leucocyte alkaline phosphatase is a phosphomonoesterase and its optimum pH of activity ranges from 9·2 to 9·8. In leucocytes, the properties of the enzyme are the same as in other tissues, viz., activation by a metal activator such as Mg^{++} and inhibition by sulfhydryl components such as glutathione. Its concentration in leucocytes has no known relationship with serum alkaline phosphatase[3, 8].

Quantitative appraisal of alkaline phosphatase activity has been made in incubation systems employing usually β-glycerophosphate as substrate, saponin to facilitate enzyme-substrate contact, a buffered medium at pH 9·9, one hour incubation at 37°C and finally spectrophotometry to measure inorganic phosphorus liberated[3]. The enzyme is also demonstrable by histochemical technique as developed by Gomori[8]. There is considerable difference of opinion regarding the localisation of the enzyme in the leucocytes as well as in other cells. One view is that the enzyme is present mainly in nucleus; while other workers regard it to be localised mainly in the cytoplasm, any reaction seen in the nucleus being regarded as artefact. Most of the recent work on alkaline phosphatase in blood cells, however, refers to the activity in the cytoplasm[3, 5, 6, 7]. With histochemical techniques, alkaline phosphatase activity is demonstrable in normal polymorphonuclear granulocyte as seen in peripheral blood and bone marrow[5-9]. The reaction for the enzyme appears to be more pronounced in bone marrow cells than in cells in peripheral circulation. In man, alkaline phosphatase activity is low or absent in blast cells and mononuclear leucocytes.

With Gomori's technique, the haemic cells have been studied and results reported by

[1] VALENTINE, W. N., BECK, W. S., FOLLETTE, J. H., MILLS, H. S. AND LAWRENCE, J. S.—*Blood*, **7**: 950, 1952.
[2] *Idem*—*J. Lab. & Clin. Med.*, **44**: 219. 1954.
[3] VALENTINE, W. N., FOLLETTE, J. H., SOLOMON, D. H. AND REYNOLDS, J.—In "The Leukaemias: Etiology, Pathophysiology and Treatment, Edited by Rebuck, J. W., Bethell, F. H. and Monto, R. W., Academic Press, Inc., New York, pp. 457-465.
[4] LAWRENCE, J. S.—*J.A.M.A.*, **157**: 1212, 1955.
[5] MOLONEY, W. C. AND LANGE, R. D.—*Blood*, **9**: 663, 1954.
[6] KAPLOW, L. S.—*Ibid*, **10**: 1023, 1955.
[7] WILTSHAW, E. AND MOLONEY, W. C.—*Ibid*, **10**: 1120, 1955.
[8] GOMORI, G.—*Proc. Soc. Exper. Biol. & Med.*, **42**: 23, 1939.

Wachstein[9], Dempsey and Wislocki[10], Rheingold and Wislocki[11] and by Rabinovitch and Andreucci[12]. Valentine and his co-workers have investigated in detail the alkaline phosphatase activity of human neutrophilic leucocytes with their quantitative cyto-biochemical technique[1, 2, 3]. Expressed as milligrams of phosphorus liberated per hour per 10^{10} cells from substrate, under conditions mentioned before, unit cell leucocyte phosphatase is often increased greatly in a wide variety of clinical conditions, viz., infection, trauma, diabetic acidosis, acute gout, intestinal haemorrhage, cerebrovascular accidents and other miscellaneous conditions. This increased activity in diverse states appears to be a qualitative change unrelated to the total leucocyte count and the differential pattern[3]. In contrast, in chronic myeloid leukaemia the enzyme activity is low in the granulocytes and this low activity has been reported to be consistently and invariably independent of the total leucocyte count and the differential pattern. In polycythaemia vera and in many non-leukaemic myeloproliferative disorders where the peripheral leucocytic pattern resembles that in chronic myeloid leukaemia, the granulocytes exhibit greatly increased activity[1, 2, 3, 7]. It may be mentioned in this connection that in collagen diseases leucocyte alkaline phosphatase activity is not usually elevated[3].

Elevated alkaline phosphatase activity may in some way be mediated through an overactivity of adrenal corticosteroid. It has been found that unit cell phosphatase is substantially elevated following the administration of large amounts of ACTH to individuals with intact adrenal glands but not in patients with Addison's disease. 17-hydroxy-corticosteroids but not DOCA or ascorbic acid are also capable of eliciting this response. Neither ACTH or 17-hydroxy-corticosteroid would, however, elicit such a response in chronic myeloid leukaemia where the 'native' alkaline phosphatase activity is low on a unit cell basis.[3]

Leucocyte alkaline phosphatase is thus expected to be useful in differentiating chronic myeloid leukaemia from leukaemoid reactions. In chronic myeloid leukaemia the sulfhydryl content of the neutrophils is increased suggesting a reciprocal relationship between these and the low alkaline phosphatase activity. The various anti-leukaemic drugs, deep x-rays, P^{32}, do not usually improve the alkaline phosphatase even in the presence of satisfactory clinical and haematological remission.

[9] WACHSTEIN, M.—*J. Lab. & Clin. Med.*, **31** : 1, 1946.
[10] DEMPSEY, E. W. AND WISLOCKI, G. B.—*Physiol. Rev.*, **26** : 1, 1946.
[11] RHEINGOLD, J. J. AND WISLOCKI, G. B.—*Blood*, **3** : 641, 1948.
[12] RABINOVITCH, M. AND ANDREUCCI, D.—*Ibid*, **4** : 580, 1949.

DONATIONS TO I.M.A. BUILDING FUND EXEMPTED FROM INCOME TAX

The Income-tax Officer, B-XII District, New Delhi in his communication No. B-XIII/19 dated 8-4-58 to the Indian Medical Association, Central Office, Delhi on the Request for Exemption Certificate u/s 15B writes :

On the scrutiny of the case it appears that Indian Medical Association satisfies the conditions laid down in Section 15B and hence donations made to the society are entitled to exemption under Section 15B.

It is further certified that the Income of the Association is exempt under section 4(3) (1) of the Indian Income-tax Act.

CURRENT MEDICAL LITERATURE

Problem of Breast Abscess in Puerperium

SARASON AND STEWART (*Surg. Gynec. & Obst.*, **105**: 224, 1957) from the Department of Surgery and Obstetrics, State University of New York, Upstate Medical Centre, Syracuse, give as follows their summary of observations on a series of cases of puerperal breast abscesses :

There has been a definite rise in the incidence of puerperal breast abscess caused by a particular strain of penicillin-resistant staphylococci prevalent in the hospital environment. The newborn infant becomes infected with the offending pathogen in the nursery and transfers it to the nursing mother.

The administration of chloramphenicol in adequate dosage upon the recognition of a tender, nonfluctuant mass in the breast in the early puerperium may obviate later incision and drainage of an abscess. Conversely, antimicrobial therapy alone is no substitute for surgical drainage of a breast abscess discovered later on.

It behoves the attending obstetrician to follow the mother closely in the early postpartum period to detect the earliest signs of breast infection and institute appropriate antibiotic therapy without delay.

On the basis of recent epidemiologic studies cited, the routine prophylactic administration of chloramphenicol or erythromycin to all babies in the nursery has been found an important part in the control of an outbreak of puerperal breast abscess due to penicillin-resistant staphylococci.

Cases of Congenital Disturbances of Thyroid Function

HARRACK (*German Med. Monthly*, **2**: 272, 1957) from the Pediatric Department, University of Hamburg, writes that genetic factors play an important part in the pathogenesis of congenital primary hypo- or athyroidism. Thus, 17 of 32 patients investigated by the author showed a familial predisposition to thyroid disease (especially goitre and hyperthyroidism), while among 200 children of the control group there was a familial history in only 20 per cent.

Intra-uterine factors are less important. In only 10 published cases of congenital myxoedema was there evidence of maternal hyper- or hypothyroidism. According to Lelong ¼ of cases of hypothyroidism due to faulty iodine utilization show a familial predisposition to thyroid disease. The many instances of thyroid disease among siblings also point to a genetic factor.

In secondary hypothyroidism, due to hypophyseal causes, and in hypoplastic lingual thyroid as a result of development arrest, conclusions cannot be drawn because of the small number of cases which have been observed.

Monovular twins were studied whose mother developed hyperthyroidism during pregnancy. Only one twin showed a developmental arrest of the thyroid (intra-uterine factor).

Congenital goitre does not show a familial trend. It is observed in children whose mothers received thiouracil or iodine because of hyperthyroidism during the last few months of pregnancy. The thyroid swelling gradually recedes over the first few weeks or months of life. Dangerous tracheal compression only rarely occurs.

Congenital hyperthyroidism is uncommon in children whose mother had hyperthyroidism during or before pregnancy and showed an increased production of thyrotropic hormone once thyroid function had been decreased. There is no doubt that in man transplacental passage of TSH or its active portion is possible.—*Author's summary.*

Defects in Infants Whose Mothers had Rubella during Pregnancy

GREENBURG AND OTHER (*J. A. M. A.*, **165**: 678, 1957) from the Bureau of Preventable Diseases, New York City Department of Health, report on the results of actual examination of infants born to mothers in whom rubella during pregnancy was diagnosed by a physician. Of 104 women who had rubella during the first trimester, 28 delivered normal infants; there were 3 stillbirths, 12 other foetal deaths, 48 therapeutic abortions, and 10 cases lost from study. The incidence of congenital deformities among the live-born babies of women with rubella during the first trimester of pregnancy was 9·7 per cent. No controls were used, so that a comparison with women who had no rubella could not be made. Rubella appears to increase the likelihood of malformations, but the high rates of incidence set by early authors are exaggerated. The recommendation of therapeutic abortion because of rubella should not become routine, but should take into account all known factors in the situation, such as the age and fertility of the mother. Until more information is obtained on relative risks, physicians owe it to their patients and to society to advise parents to expose their susceptible young daughters to rubella.

Empyema in Infancy and Childhood

HEBERER AND OTHERS (*German Med. Monthly*, **2**: 270, 1957) from the Department of Surgery and Pediatrics, University of Marburg, give in the following lines the summary of their clinical observations on empyema in infancy and childhood :

Chronic empyemas are rare in childhood.

If an empyema regresses only slowly during the first few weeks, surgery is not indicated, unless there is a bronchopleural fistula.

If the cavity does not diminish in size after several months, one should suspect a bronchopleural fistula, which in any case is the most common cause of chronic empyema.

If there is no internal fistula, suction drainage should be instituted.

If suction drainage is unsuccessful the wall of the empyema cavity is either too thick or an intermittent fistula is present.

Thick-walled cavities or cavities with bronchopleural fistulae are indications for decortication. If secondary parenchymatous changes or bronchiectasis are present decortication should be coupled with lobectomy.

Influenza in Children

UDANI AND OTHERS (*J. J. J. Group Hosp. & Grant M. Coll.*, **2** : 288, 1957) from the Department of Pediatrics, B. J. Hospital for Children and Grant Medical College, Bombay, give in the following lines the summary of their observations on 420 cases of influenza in children :

Two-thirds of the cases had mild or moderate illness, one-third had severe illness.

Cases have been described as typical influenza cases of mild or moderate degree, febrile type, or those with involvement of predominantly different system, e.g., respiratory, gastro-intestinal, abdominal, meningo-encephalitic, etc.

Lower respiratory involvement occurred in about 24 per cent of the cases. In four cases, it was tracheitis predominantly, in 28 bronchitis, in 21 bronchiolitis and bronchopneumonia, in 8 lobular pneumonia and in 2 haemorrhagic pleurisy. Mortality rate was nearly 38 per cent in cases with bronchiolitis and bronchopneumonia.

Radiological findings were, increased bronchial and hilar markings, miliary mottling, lobular pneumonia, pleuro-pneumonia.

Eight cases had myocarditis out of which five died, 12 cases had abdominal pain, one due to marked mesenteric lymphadenitis.

21 cases had a picture of cerebral and meningeal involvement, five predominantly meningitic, five encephalitic and eleven, a mixed one. Over half the cases died.

One child had a picture of polyneuritis from which she recovered completely in three weeks.

Two developed diabetes insipidus during the illness.

Haematemesis During Prednisolone Therapy

LORBER (*Brit. M. J.*, **2**: 749, 1957) from the Dept. of Child Health, University of Sheffield, records the occurrence of a series of massive haematemesis in a child while receiving prednisolone for the treatment of rheumatic fever.

In 200 cases, temperature lasted from 2-7 days. In 21 cases, pyrexia continued from 2 weeks to five months. These were labelled as chronic influenzal pyrexia.

Twelve cases had evidence of external haemorrhages —5 haematemesis, 1 intestinal, 3 nasal, 1 skin, 1 throat and one in the eye.

Fifteen cases died out of 240, i.e. 16·2 per cent. Mortality was 29 per cent under six months and 11·9 per cent under one year.

Autopsy was done in ten cases. They had a picture of fulminating virus infection.

The characteristic autopsy findings were seen in the respiratory tract, especially the lungs which gave a picture of haemorrhagic interstitial bronchopneumonia, Heart, liver, brain, lymphoid tissue, intestines also showed congestion and haemorrhages.

In mild and moderate cases, only symptomatic therapy was given. The severe cases and with lower respiratory tract involvement, antibiotics were used. Prednisolone was used in cases with respiratory disease, myocarditis and meningo-encephalitis.

Some post-influenzal conditions have been mentioned.

Paper Electrophoresis of Serum Proteins in Malnutrition

PATEL AND OTHERS (*Indian J. Child Health*, **6**: 289, 1957) from the Department of Pediatrics, B. J. Hospital for Children, Sir J. J. Group of Hospitals, Bombay, from an analysis of the paper electrophoretic study of proteins in 10 normal children and 47 children with malnutrition (30 with oedema and 17 without it) observe :

Serum protein of normal healthy Indian children is slightly lower than those reported by others; but gamma globulin fraction is higher. Total plasma proteins and albumin are lower in the marasmic malnutrition but lowest in the oedema group. Gamma globulin rises as albumin levels fall in the malnutrition associated with development of severe oedema. Alpha globulins are slightly higher in the marasmic group but lower in the oedema group, and beta globulins are diminished in both, more so in the latter. Severe skin lesions are encountered in the oedema group. It is suggested that rise in gamma globulins and the severity of the skin changes may be some of the manifestations of a severe biochemical abnormality in protein malnutrition.

Problem of Rectal Involvement by Prostatic Cancer

WINTER (*Surg. Gynec. & Obst.*, **105** : 136, 1957) from the Urologic Section, Wadsworth General Hospital, Veterans Administration, Los Angeles and the University of California Medical Centre, Los Angeles, writes that prostatic cancer discovered late as a rectal mass may easily be mistaken for a primary rectal neoplasm. The avoidance of this error is of particular importance since prostatic cancer differs from other neoplastic lesions of this region because of its control by hormonal therapy.

A 4-year survey from 4 large general hospitals in the Los Angeles area has shown that prostatic carcinoma involved the rectum to such an extent that a problem of differential diagnosis arose in 11 per cent (32 cases).

These cases were classified into 5 categories according to the type of rectal involvement :

In the first group, a large mass protrudes into the rectum so as to prevent passage of a proctoscope (25 per cent). The second group encircles the rectal lumen causing a stenosing, annular lesion (40 per cent). A third group directly invades the rectal mucosa with or without the features of groups 1 and 2 (21 per cent). A number of these lesions are separate metastases to the rectosigmoid (9 per cent). Finally, carcinoma of both the prostate and rectum may be present (3 per cent).

The systematic use of available diagnostic procedures has helped in resolving this problem in differential diagnosis. The importance of making a correct diagnosis is emphasized because of differences in prognosis and methods of treatment as well as in economic and psychologic factors.

CURRENT TOPIC

EVOLUTION OF PUBLIC HEALTH PRACTICE IN INDIA

N. JUNGALWALLA

Director
All-India Institute of Hygiene and Public Health, Calcutta

The modern concept of "public health" has its origin in Europe. Around 1770 Johann Peter Frank, who was probably the first person to be appointed a Director of Public Health, wrote, "But, if they (the rulers) overlook one thing only, the need to remove or make tolerable the richest source of disease, the extreme poverty of the people, then hardly any benefits will accrue from public health legislation". While Boards of Health were coming into being in Europe, the U.K. and the U.S.A. about the end of the 18th century, it was around the middle of the 19th century that teaching of hygiene and public health was being taken up in medical institutions.

Concurrently, in 1859, a Royal Commission on Health in India made the first modern survey of the situation. As in Europe and the U.K. where epidemics of cholera and plague were responsible for stimulating action in regard to both the teaching and practice of preventive health measures, the recommendations of the Royal Commission were acted on only after widespread epidemics of plague had taken heavy toll of life. The origins of public health practice as a science can be said to have evolved from the need to prevent such devastating outbreaks. Pettenkoffer, another outstanding European in the field of public health practice, was one of the first to make a scientific study of the spread of cholera, while Snow's classical contribution to this in the U.K. is still used as a classroom exercise and demonstration.

In India, the transfer of responsibility for public health services to provincial Governments, in 1919, resulted in an expansion of public health activities, with a demand for specially trained public health personnel. At the same time, the rapid advances in Tropical Medicine in India, through the work of Ross, Rogers, Leishmann and others was rivalling the earlier work in Europe of Koch and Pettenkoffer, and was leading to an increasing awareness of the need for a School of Tropical Medicine and Hygiene, which was established in Calcutta in 1920. Up to that time, medical services in India were mostly concentrated on improving the standard of hospital care, improving the quality of teaching of clinical medicine, leaving only about 20 per cent of the total health expenditure for preventive work. By 1930, a few of the medical colleges were giving a special training in public health, catering mainly to provincial requirements.

Research and Application

In 1932, through generous Rockefeller Foundation assistance, the All-India Institute of Hygiene and Public Health was completed. At the inauguration it was stated that "the primary object of the Institute is to bridge over the gulf between the results achieved by pure research, and their practical application to the community. Its function will therefore primarily be that of instruction. Considering the importance of maternity and child welfare work, and public health nursing, it is contemplated that special courses in these subjects may be instituted for women graduates and nurses. The Institute will be co-ordinated with the various aspects of practical hygiene and public health all over India, and it is hoped will be able to render assistance to public health administrators and workers, and institute enquiries and investigations of a practical nature in the application of medical research and knowledge for the betterment of the Indian people". One cannot but admire the foresight and wisdom of those who planned and enunciated this policy.

In 1937, a further step towards co-ordination of health programmes between the Centre and the States was taken by the formation of a Central Advisory Board, which is today succeeded by the Central Council of Health Ministers. The work, however, was mainly carried on independently in the States, although administratively heads of Departments in the main belonged to a Central Service, the Indian Medical Service, under a Director-General controlling both the Civil and Military wings of the service. Almost a century after the first health survey in India, the Health Survey and Development Committee, constituted in 1943, after a comprehensive survey of conditions in India, and taking into account trends in public health in many parts of the world, made its report in 1946. Followed after independence by a manpower resources survey, and the establishment of the Planning Commission, it was possible for the first time in India to evolve a comprehensive and co-ordinated health programme, with priorities. This coincided with the concept of world-wide action on certain diseases, especially yaws and malaria, the control of which had now become possible by the remarkable discoveries of DDT and penicillin. Co-ordinated and effective administrative experience regarding control of such diseases was gained during world war campaigns and was projected into nation-wide campaigns through the stimulation and valuable assistance of the international agencies, the WHO, UNICEF, FAO, as well as bilateral agencies such as the US aid programmes. From nation-wide control projects to a wider concept of world-wide control, from control to talk of eradication, and finally of actual eradication were steps which public health workers all over the world have watched and learnt of, sometimes with scepticism, but never without the thrill of seeing achievements, which 15 years ago seemed inconceivable.

Mobility in Health Work

Such nation-wide programmes as well as the advent of the Community Development programmes have had great influence in bringing about changes of administrative procedure and working relationships between the Centre and States. Central subsidies for priority programmes evolved as part of the Five-Year Plans are

now accepted. Standards of work and staffing patterns have been laid down. Flexibility of working and administrative procedures, the necessity for mobility in health work, conference techniques in planning and evaluation, have led to changes and additions in the pattern of Central and State Health Services. Amongst health service staff today are not only the health officers, but physician specialists, radiologists and technicians, laboratory workers, engineers, social workers, public health nurses, dentists, statisticians, chemists and analysts, health educators and anthropologists and non-medical administrators.

Preoccupation with legislation and more "police" power in "enforcing" health standards is giving way to realisation of the need for health "promotion" through education and demonstration to individuals, families and communities. Our national plans have also recognised the need for improvement in standards of teaching and training. Of special significance is the plan for central assistance to selected medical colleges for teaching of preventive and social medicine, and paediatrics. The need for trained teachers and trained personnel are reflected in our plans to have available 90,000 doctors, 80,000 each of nurses and midwives, 20,000 each of health visitors and sanitary inspectors, during these periods. We are fortunate today in having medical colleges and post-graduate institutes of the highest standards, a tribute to those who planned and initiated them and to those who at present are continuing to maintain their efficiency.

The next 50 years promise an opportunity for service and satisfaction to health workers in India in an environment previously unknown.

NOTES AND NEWS

New Freeze-Dried BCG Vaccine

A new British freeze-dried vaccine for tuberculosis is being made available for a nine-month trial period from April 1, according to the *British Medical Journal*.

The Journal says that until now the only T.B. vaccine generally used in Britain has been a liquid preparation imported from the State Serum Institute in Copenhagen, which has proved to be "very satisfactory". However, liquid vaccines do not keep well and must be used shortly after being prepared.

The freeze-dried vaccine was given an extensive trial last year.

The Journal concludes, "The administrative convenience resulting from the improved keeping qualities of the freeze-dried vaccine—it may safely be kept in a refrigerator for at least six months after issue—ensures that the vaccine will be widely used here.

"Further information about its keeping qualities at room temperatures will be awaited with interest, both at home and in some countries overseas where the advent of a reliable freeze-dried BCG will do much to assist tuberculosis control."

World Population Up By 20 per cent

World industrial activity and international trade broke all post-war records in 1956, according to the U. N. *Statistical Yearbook* for 1957 published in New York in March. This, the ninth issue of the yearbook, was prepared by the U. N. Statistical Office with the help of authorities in about 150 countries and territories, together with assistance from U. N. specialised agencies. The yearbook said that in 1956 the world's factories and mines produced about 2½ times as much as in 1938. Ships carried twice as much cargo, airlines flew more than eight times as many miles and exports were 80 per cent greater. It also disclosed that between 1940 and 1956 the population of the world increased by 20 per cent. The world's population was estimated at about 2,737 million in mid-1956 as against 2,495 million in 1950, 2,246 million in 1940, and 1,810 million in 1920. Asia (excluding the Soviet Union) was the continent with the largest population—rather more than half the world total. Europe (excluding the Soviet Union) was the most densely populated continent. Statistics on world production (excluding that of the Soviet Union, Eastern Europe and mainland China) show that production in 1956 was 4½ per cent greater than in the previous year, 40 per cent greater than in 1950, and 127 per cent greater than in 1938. For the Soviet Union and Eastern Europe the yearbook listed official figures published by those countries. These showed that Russia, Poland, Bulgaria, Czechoslovakia, Rumania and Hungary were all steadily increasing their production.

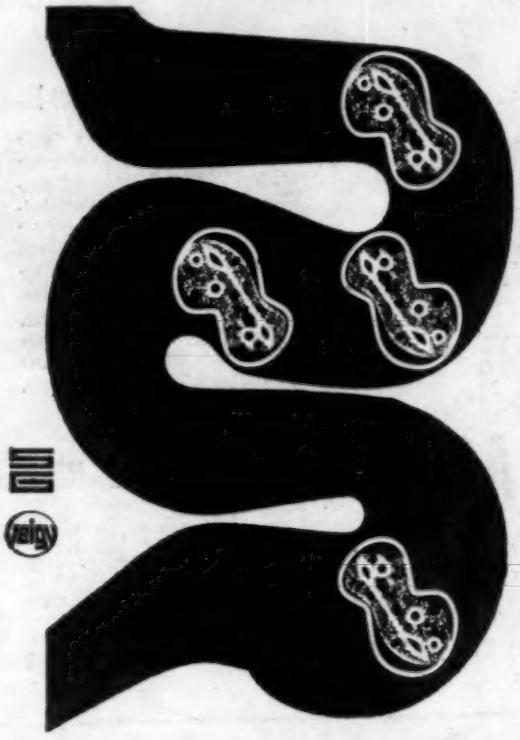
Between 1948 and 1956 a group of 15 eastern countries including India and Pakistan increased their industrial production by 149 per cent. The largest increases were recorded by the paper industry, basic metals, chemical and metal products.

Manufacture of Milk Powder

Mr. M. V. Krishnappa, Deputy Minister for Food, Government of India, inaugurating in Vijayawada, on March 22, the Andhra Pradesh Cattle Show and Exhibition under the auspices of the department of Animal Husbandry and Fisheries, announced that two milk-powder factories would be established in the State, one at Guntur and the other at Vijayawada during the Second Five-Year Plan period with a capital of Rs. 115 lakhs, a part of which will be provided as grant and the balance as loan. The Union Deputy Food Minister said that this was decided upon after assessing the results of such a factory working now in Bombay State.

Health School Shifted

Sir John Anderson Health School at Calcutta after being absorbed by Government of West Bengal has been shifted to Singur in the District of Hooghly and started functioning from 1-4-58. The present address of the School is: "Government of West Bengal, Sir John Anderson Health School, Singur, Hooghly."



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Tuberculosis Association of Jammu & Kashmir

A society called the Tuberculosis Association of Jammu and Kashmir State with Yuvraj Karan Singh as president has been formed.

The aims and objects of the Association are the prevention, control, treatment and relief of tuberculosis and the encouragement of and assistance in the establishment throughout the State of associations having objects similar in whole or in part to those of the Association.

The Executive Committee of the Association will consist of nine members with the Health Minister as ex-officio vice-chairman. The Director of Education will be its ex-officio member. The elected members will include one member of the Legislative Assembly to be nominated by the Speaker, one member of the Red Cross Society, Srinagar branch, one member chosen by the District Associations and one member chosen by other bodies or institutions affiliated to the branch. Two or more members will be co-opted.

A sum of Rs. 5,000 has been given by the Government to the Association as grant-in-aid to meet the initial expense. The Government has also released the balance of Rs. 43,000 from the King Emperor's Anti-Tuberculosis Fund in favour of the Association.

Milk Consumption in India

Only 39·2 per cent of the total milk production in the country is utilised as fluid milk, according to the 1956 livestock census. The largest percentage, 40 is converted into ghee.

Other figures of percentage utilisation are : curds 8·8; butter 6·1; khoa 4·3; cream 0·7; ice-cream 0·5; and others 0·4.

The total milk production in 1956 was 477·7 million maunds. Of this 254 million maunds was buffalo milk, 207 million maunds cow's milk and 16·5 million maunds goat's milk.

The largest milk producing State (1956) is Uttar Pradesh with 122 million maunds. Punjab comes next with over 61 million maunds. Bombay, Bihar, Andhra and Rajasthan produce between 40 and 50 million maunds each, Madhya Pradesh 31 million maunds, Madras, Mysore and West Bengal between 15 and 20 million maunds, Orissa 10 million maunds and Kerala, Assam and Kashmir below five million maunds each.

The all-India per capita consumption of milk is only 4·76 ounces per day as compared to 22·8 in Switzerland and Sweden, 17 in the U.S., 15·8 in Denmark, 14·2 in the U.K., 14 in Australia and 7·7 in France.

U.P., Punjab and Bombay are the main ice-cream producing States. The Punjabis are obviously also very fond of butter. Madras, Kashmir, Bihar and Andhra show a preference for dahi and U.P. and Assam for khoa.

Jammu Drug Laboratory

The Council of Scientific and Industrial Research of the Government of India had taken over from December 1 last the research wing of the Drug Research Laboratory of the Kashmir Government at Jammu subject to certain terms and conditions, Dr. M. M. Das, Deputy Minister for Education and Scientific Research, said in Lok Sabha recently, replying to a question. The land, hereditaments and premises of the laboratory had also been taken over by the Council. The terms and conditions of the transfer were : (1) The laboratory would continue to work on drugs and might take up other items of work of regional importance. (2) The Council would employ all persons who were willing to come over from the research section. (3) The drug farm and industrial side of the existing Drug Research Laboratory and the analytical and standardisation laboratory of the existing research section would continue to function under the control of the State Government. (4) The Council would render all possible technical assistance to the Drug Research Laboratory of the State Government as might be required from time to time.

Research Facilities for Army Medical Officers

The new building of the Armed Forces Medical College, equipped for research, was declared open in Poona by Mr. Krishna Menon on March 30.

The College was opened in 1948 on the recommendation of a committee headed by Dr. B. C. Roy in favour of a central institution to train medical officers of the armed forces. It represents the merger of old army institutions such as the Medical Training Centre, the Research Organisation, the Pathology Laboratory, the Transfusion Centre and the School of Radiology. The new home of the College has been constructed at a cost of Rs. 38 lakhs.

The Defence Minister said the research facilities proposed to be provided at the College were evidence of the Government of India's desire to go ahead step by step in the field of science. The Government has already defined its policy in regard to science and research and the place of both in the scheme of general development of the country. The object was to give a fillip to scientific work and to scientists.

Mr. Menon paid tributes to the Armed Forces Medical College for its services in the cause of medical education and research. He was happy to know that its training and research facilities would be progressively co-ordinated with Poona University and that the University authorities had been very sympathetic towards its special requirements.

The Defence Minister hoped that it would be possible for the College to extend the teaching facilities progressively to civilians—because he did not think that the anatomy of a civilian was far different from that of a soldier.

He complimented Lieut.-Gen. B. Chaudhuri, Director-General of the Armed Forces Medical Service, for the standard of training imparted in the College.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

An Appeal to the Profession

SIR,—Through the columns of your esteemed journal I beg to bring to the notice of the profession, some unethical and unprofessional conduct of some of us towards our colleagues.

A medical man, called to attend a patient whether as a consultant or not, should first enquire if any physician had attended the patient and demand the presence of the attending physician, before examining the case. He should examine the patient before the attending physician and give his wise counsel. But I regret to say that many of us do not observe this principle always. On the contrary, some of us who are seniors and well placed in their professional lives, being called as consultants, sometimes take our colleagues' cases wholly to ourselves and even comment against the treatment of the attending physicians, in their absence.

These are facts, which happen especially in the rural areas.

Often it is said that ours is a noble profession. Our duties should be noble to our patients and to our colleagues also. We must have sympathy and fellow-feeling for each other. I appeal to the profession and to our association to look into the matter seriously. I am etc.,

SAROJ KUMAR CHATTERJEE, L.M.F.

Jara,
Midnapore.

The following extracts from the Annual Medical List, Appendix, Part III, paras 4-14, relate to the question raised in the above letter.—ED., *J. Indian M. A.*

4. Every member should endeavour to observe punctuality in consultation appointments. If the medical attendant has not arrived within a reasonable time (e.g., a quarter of an hour after the appointed hour), the consultant shall be at liberty to see the patient alone, and should leave his conclusions in writing in a sealed envelope. The consultant also should be as punctual as possible.

5. The result of the consultation shall be mutually arranged between the medical attendant and the consultant, and the duty of announcing it to the patient's friends shall rest with the medical attendant.

6. Differences of opinion should not be divulged unnecessarily but when there is an irreconcilable difference of opinion, the circumstances should be frankly and impartially explained to the patient's friends by the medical attendant. It is open to them to seek further advice, either as is preferable, in consultation with those already in attendance, or with the medical attendant only.

7. The attendance of a consulting practitioner should cease when the consultation is concluded, unless another appointment is arranged by the medical attendant or unless the patient has dispensed with the services of the medical attendant and engaged those of another. The engagement of a second medical attendant other than the first does not enable the consultant to treat the patient so long as he is not called for consultation by the second medical attendant. Except in cases of grave emergency no consulting practitioner shall treat the patient alone or hand him over to his assistants or remove him to a nursing home or private hospital, without the knowledge of the medical attendant or injure the latter's position in any respect.

8. When a medical practitioner is asked to see and report on a case of illness or injury of a person who is under the care of another registered practitioner or about whom the latter has already given a a medical certificate, the former should in all cases give the latter an opportunity to be present at the time of examination, if he so liked ; and for this purpose he should direct the patient to inform the latter practitioner in sufficient time.

The medical practitioner when so seeing or reporting on a case, shall not interfere with the treatment nor make any disparaging remarks about the first diagnosis and treatment, even though he might differ.

9. When a consultant in his room sees a patient at the request of a medical practitioner, it is his duty to write to the latter, stating his opinion of the case, with the mode of treatment he thinks should be adopted, and he shall not again see the same patient without a fresh note from his medical attendant.

10. A member entrusted with the care of the practice of another member during sickness or absence should not charge the absent practitioner for his services except in the case of a special arrangement between the practitioners.

11. A member called upon in an emergency to visit a patient who under ordinary circumstances should have been attended by another member, should when the emergency is provided for, retire in favour of the ordinary medical attendant, but shall be entitled to charge the patient for his services.

12. When a member is consulted by a patient whom he has previously attended during the course of the same illness at the request of another practitioner, he may propose a consultation with the said practitioner, but should decline to take charge of the case.

13. When a member is requested to attend a patient already under the care of another practitioner (the case not being one of urgency) he should decline to do so, except in consultation with the practitioner in attendance, or, in case the consultation be not agreed to until the practitioner in attendance has been informed by the patient (in writing, if possible) that his services are no longer desired.

14. When a practitioner is consulted at his own residence, it is not necessary for him to inquire if the patient is under the care of another practitioner, but if that fact should transpire, the interest of the patient of courtesy may require that the medical attendant be informed of the consultation and its results.

REVIEWS

A Handbook on Diseases of Children, including Dietetics and the Common Fevers—By Bruce Williamson, M.D. (EDIN.), F.R.C.P. (LOND.). Published by E. & S. Livingstone Ltd., Edinburgh and London. Eighth edition, October 1957, 7¼ × 4 inches; pliable plasticloth binding, 483 pages; price 27*s.* 6*d.* net.

This is a real handbook in dimensions, but the size of the book is no measure of the wealth of very valuable material of good and worthwhile reading that it contains. The subject has been conveniently split up into a total of 30 chapters, the last two being "Infant

Welfare and Dietetics" and "Artificial Feeding"—subjects which are important but not always well appreciated by practitioners in general. 117 illustrations used throughout the text add to its usefulness.

The Development and Disorders of Speech in Childhood—By Muriel E. Morley, B.SC., F.C.S.T., with a foreword by Professor Donald Court, M.D., M.R.C.P., D.C.H. Published 1957 by E. & S. Livingstone Ltd., Edinburgh and London. Board bound, 8¼ × 5¼ inches, 440 pages; price 45 *s.* net, regd. postage 1*s.* 7*d.*

Disorders of speech may be developmental or acquired, and elaborate classifications have been evolved to describe the varying symptoms. During the last few years, a group consisting of a paediatrician, a neurologist, a psychologist and a speech therapist has carried out clinical observations on children with developmental disorders of speech who were attending for speech therapy at hospital clinics in Newcastle-upon-Tyne. These observations have shown the affected children to fall into four broad categories:—Those who have normal speech, those who do not understand speech and do not speak, those who understand but do not speak, and those who both understand and speak but in whom articulation or speech is defective. This book presents a classification of developmental disorders of speech and the approach necessary to remedy these defects where that is reasonably possible. The author writes as a speech therapist and a teacher. This book should prove informative and very helpful to speech therapists, teachers, the specialists in the subject and also family doctors.

Rhythmusstörungen des Herzens. Systematik. Ursache und klinische Bedeutung. Therapie—Von Prof. Dr. K. Spang, Stuttgart, Mit Beiträgen: Morphologie des Reizleitungssystems, ihre Orthologie und Pathologie—von Prof. Dr. W. Doerr, Kiel, und Physiologie der Herzirregularitäten—von Priv.-Doz. Dr. W. Trautwein, Heidelberg, 1957. XVI, 548 Seiten, 109 Abb. und ein Tafelanhang mit 228 Abb., Lex.-8°, Ganzleinen DM 148.

Disturbances of Cardiac Rhythm: System, Causes and Clinical Significance; Treatment—By Prof. Dr. K. Spang, Stuttgart, with contributions: Morphology of the Conductive System, its orthology and pathology by Prof. Dr. W. Doerr, Kiel, and Physiology of Cardiac Irregularities by Priv.-Doz. Dr. W. Trautwein, Heidelberg (in German) XVI, 548 pp., 109 illustr. and an atlas with 228 illustr., Georg Thieme, Stuttgart, 1957 DM 148.

This monumental volume with a detachable atlas measures 11" × 7½". Comparing it with Lewis's *Mechanism and Graphic Registration of the Heart Beat* (3rd ed. 1925) or Wenckebach and Winterberg's *Irregular Heart Action* (1927), the classics of more than 30 years ago, one is impressed by the deep insight in the mechanisms concerned which the generation of our teachers possessed already, but also with the far-reaching changes that took place since then. These advances altered not only the theoretical concepts of many problems of cardiac excitation and conduction, but fortunately also modified our therapeutic approach, including some innovations that proved life-saving.

The main sections are: I. a systematic description of disturbances of rhythm arising from faulty impulse production and conduction, including double rhythms; II. Correlations between disturbances of rhythm with certain clinical conditions, with special emphasis on the place of arrhythmias in diagnosis and prognosis. The last part is devoted to the treatment of arrhythmias, based on a full discussion of pharmacodynamic facts, representing a complete and up-to-date pharmacology of the heart. Artificial pace-makers and counter-shock find proper evaluation.

Finally, the special therapy for every form of arrhythmia is given in considerable detail. These predominantly clinical parts are preceded by an exhaustive and beautifully illustrated chapter on the normal and pathological anatomy and histology of the conductive system by Prof. Doerr, and by a very instructive chapter by Doz. Trautwein on the physiological basis of arrhythmias, of the intricacies of which we clinicians are only too often blissfully ignorant.

It is impossible in the short space of a review to give more than a faint idea of the wealth of information on the very latest position of every problem involved to be found here and the balanced views which the author takes of such controversial questions as fibrillation, flutter, extrasystoles etc., judiciously weighing all the arguments of the various workers. The clinical material has been equally conscientiously worked out, each of the numerous curves being accompanied by a characteristic case history, while in the attached atlas every graph bears the page number of the text that explains it and which is illustrated by it. A particularly valuable feature of this great work is the abundance of references to German, English, French and Italian literature reaching well into 1957; 1708 items (51 pp.) cover the clinical part; in addition, hundreds of references have been assembled at the end of the two introductory chapters; a useful innovation is that every reference shows the page number where it has been quoted in the text. In the index three different types of print point either to the pages where the subject has been discussed in detail or where it was only mentioned or to the illustrations in the atlas, an arrangement that facilitates orientation. Paper, print and illustrations are faultless.

This is an unusually well conceived and successfully executed treatise on every aspect of arrhythmias, an absolute must for every cardiologist but also highly rewarding for everybody who has to deal with problems of the heart rhythm, be it as a physiologist, a physician or a heart surgeon. This reviewer is convinced that an English translation would be widely and warmly welcomed.

Nierenkrankheiten : Physiologie, Pathophysiologie, Klinik und Therapie –Von. Prof. Dr. H. Sarre, Freiburg/Br. 1958. XX, 540 Seiten, 118 Abbildungen, Gr.-8°, Ganzleinen DM 59.

Renal Diseases : Physiology, Pathophysiology and Therapy—By Hans Sarre, M.D., Professor of Medicine and Director of the Medical University Policlinic, Freiburg/Br. (in German). XX, 540 pp., 118 illustr., Georg Thieme, Stuttgart, 1958. DM 59.

The author, a pupil of Franz Volhard, felt that a restatement of renal function in health and disease as well as a critical appraisal of the numerous new methods of treatment was due, no monograph of this subject having been published in Germany for the last ten years.

The first section gives a detailed picture of renal function in all its aspects with a critical discussion of clearance methods and calculations which are shown to be often misleading, especially under pathological conditions. Particular emphasis has been laid upon tubular functions and mineral-water balance and its hormonal control. The next section of 70 pp. completely covers urine and blood examinations, kidney function tests, radiological diagnosis and kidney biopsy, which in the author's experience clear the diagnosis in 91 per cent of cases. The third section gives solid basis for the following clinical chapters by discussing proteinuria, haematuria etc., renal hypertension, oedema, renal insufficiency, uraemia, renal osteopathies, disturbances of partial functions, the nephrotic syndrome, extrarenal syndromes and immunobiology of glomerular nephritis. The special clinical chapters start with an exhaustive discussion of glomerulonephritis, followed by chronic nephritis, kidney affections in infectious diseases, allergoses, nephropathies of pregnancy, clinic of diseases presenting with the nephrotic syndrome, acute renal failure (tubular insufficiency), acute and chronic poisonings, among which a recently discovered interstitial nephritis after misuse of phenacetine, especially in the form of saridon, deserve attention. Then follow vascular diseases, paediatric nephropathies, pyelonephritis and nephrolithiasis.

Of special interest is the last section on general therapy dealing with treatment of acute renal failure separately for the oligo-anuric and the polyuric phase. Here full information is given on exchange transfusion, peritoneal and intestinal dialysis and especially useful details on the artificial kidney. The chapters on therapy of chronic renal insufficiency and the nephrotic syndrome base most of the therapeutic recommendations on pathophysiological considerations, an approach particularly welcomed by advanced students and clinical teachers.

No one chapter can be singled out for special praise as the book seems unusually well balanced and up-to-date; this is particularly striking when subjects are treated, such as pyelonephritis which only recently came to the foreground of clinical interest or recent advances such as hormone therapy of the nephrotic syndrome where papers published in 1956 and even 1957 are copiously quoted. References to literature in German, English, French and Italian are given fully only from 1950 onwards (to save space) and, yet they fill 15 pages in continuous lines, greatly enhancing the value of this excellent book as a reference work. The subject index of 22 pages is a model of completeness and by the use of italics and bold print for the theoretical and clinical parts respectively, unsually informative. Numerous illustrations, very good paper and print contribute to the rare pleasure that this work will give everybody interested in the fascinating subject of the kidney in health and disease. An English translation of this monograph would fill a long-felt need for a treatise on this subject equally satisfactory on the highest scientific level as from the practical point of view of the clinician.

OBITUARY

Dr. Narhar Vishwanath Bal

Dr. Narhar Vishwanath Bal was born on the 26th June 1896. After passing the L.C.P.S. examination of the College of Physicians and Surgeons, Poona he joined the Indian Medical Service.

He was awarded the distinguished services medal for conspicuous service rendered in the N.W.F.P. and Mesopotamia.

After relinquishing his post he started private practice at Jalgaon, district Buldana, in the year 1925. He was a symbol of simplicity and discipline. His life was devoted to the service of humanity. He was one of the most active and regular members of the Khamgaon Branch of the I.M.A.

DR. NARHAR VISHWANATH BAL

He would occasionally escape from the rigors of professional life by plunging into classical music—one of his hobbies. He was also an adept in contract bridge.

He died on the 12th day of March 1958. He is survived by his wife, two sons and a daughter.

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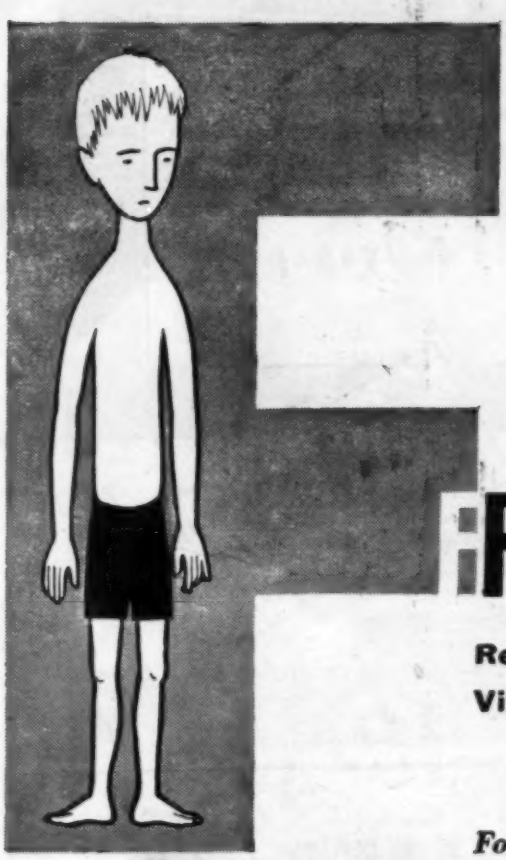

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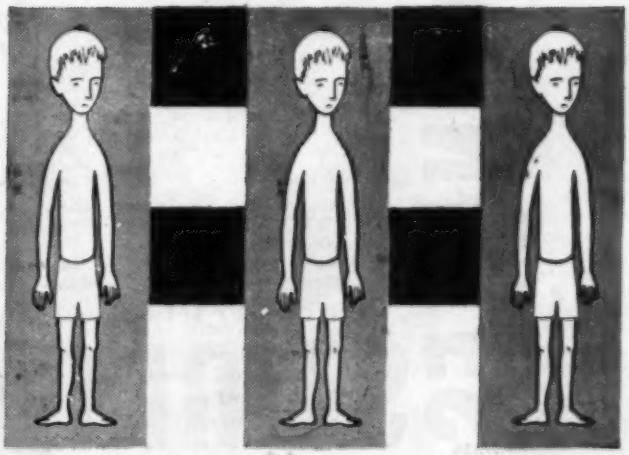

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SUPPLEMENT
Journal of the Indian Medical Association

Vol. 30, No. 10 CALCUTTA May 16, 1958

XXVII PUNJAB PROVINCIAL MEDICAL CONFERENCE, NAWASHAHR, 1957

The 27th Punjab State Medical Conference was held at Nawashahr on 23-24 November 1957. The Chairman of the Reception Committee, Dr. A. N. Bhalla accorded a hearty welcome to the guests and delegates. In his speech, he discussed Medical Aid in Rural Areas, School Children Health, Prevention of Diseases, Family Planning, Balanced Food and Quackery. Lt.-Col. Amir Chand inaugurated the conference. In his inaugural address, Lt.-Col. Amir Chand deprecated the half-hearted attitude of the Punjab Government in the matter of abolition of Licentiate course in the State. He also discussed various other questions of interest to the country from the medical point of view.

Dr. Bhagwan Dass Agarwal, the president of the conference in his address said :

Health Aims Progress under First 5 Year Plan :

The main purpose of our assembling here is to think of promoting health, for the physical, mental, intellectual and moral uplift of the masses. Health in our country is poor, with high mortality and suffering. Whereas in other welfare countries no one dies for want of medical aid wherever he be, in a city or a village; in our country people die even in big cities for want of medical attention. Today our Nation is engaged in rebuilding and re-modelling her own to attain the high order of social, economic, and political progress and this depends upon the health of the workers who make up a community. No doubt Punjab Government has done its bit by extending the provision of State Employees' Insurance Corporation for the treatment of sickness and prevention of disease, but well being of the worker also depends upon supply of good diet, clothing, and shelter, removing of overcrowding, and of primitive insanitary environment and provision of a good water supply which are all in shortness here. The Punjab Government has failed to act upon the Bhore committee's recommendations to any extent, although no better planning could be met than the Committee's recommendations to solve the country's health problems. Except for expanding the existing medical facilities at some district Headquarters, Amritsar Institution and V. J. Hospital and initiation of W.H.O.'s programmes, viz., National Malaria Control, National Water Supply and Sanitary programme (Rural), BCG vaccination and T.B. check plans, and Social measures like antivenereal, leprosy, cholera measures which have proved quite effective, thanks to the W.H.O., nothing else has been achieved. Otherwise within 10 years the Bhore Committee expected to cover up nearly half of the stipulated programme and show wonderful improvement in the health level of the people.

It is said that there is paucity of funds and shortage of doctors which do not permit the Bhore Committee's plan to be adopted by the State Government.

Is there in reality so much paucity of funds? One should look to the Community Projects. Wherever these projects have been taken in hand they have impressed the public with their utility. As a result money, labour, co-operation have flown to them in overwhelming quantity, far exceeding that of the Government's own quota for the projects. That was why the Bhore Committee also stressed on awakening of this will in the people by intensive propaganda of the goal of health, explaining to the people its gains and after arousing their mentality, arraying them against the difficulties on the path to success as the war emergency and sustaining that spirit till the target was reached. Has that been done? No, the common man has never known of the goal of health fixed for our country and of the part he has to play in it.

Is there the shortage of trained doctors that prevents the Government to follow that plan? This too is not so. Many qualified doctors (about 75 per cent) are underemployed today and wasting their precious lives idly to the detriment of their own selves and their country. The Bhore Committee not only expected to absorb all the doctors then available under the plan but hoped to absorb even those who would qualify in next ten years. Has that happened?

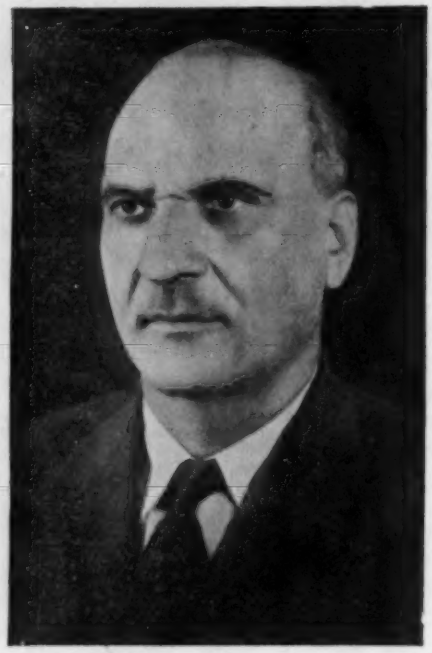
A composite Health and Education plan becomes a necessity to carry out the planning to success. If only we knew how to live properly and live in neat surroundings perhaps the need for Health Scheme would not arise. To make people health conscious every school has to be turned into a centre of hygienic education imparting short courses of dietetics, personal and social hygiene, etc. Let us think of the future and take advantage of the experience of mistakes in the past. Let us apply our mind to the progress through the modification in the plan on the axiom of "Cut your coat according to your cloth" and place first things first and replan.

Since 50 per cent of illnesses are preventible, over 50 per cent of the budget be allotted to preventive measures. As rural areas are more insanitary, more be spent on improving village sanitation than the urban one. Further spending on city hospitals be delayed.

Raise Village to City Level, Start Hospitals in Rural Areas :

I also expressed the view that new townships and hospitals be raised in villages to bring up the ruralites to urban standard. I am glad that these views of mine have been taken up by the Ministry of Community Development and decisions taken at Mossouri Conference to turn Community Block Headquarters into nuclei of rural-*cum*-urban townships and provide them with basic amenities of public health, post, telegraph, industrial training, marketing centres, veterinary health, transport and roads and so on. This is bound to attract good doctors to these towns and make medical aid cheap and easily available. Exodus of villagers from villages to cities will also stop thereby and village economy reinstated.

I shall now take up the need of a change in the urban system of medical aid. The present system in the towns and cities though fairly satisfactory does not carry the medical aid to a large section of the city popu-



DR. A. N. BHALLA
CHAIRMAN OF THE RECEPTION COMMITTEE

lation and many a defect is complained of therein. To enumerate, they are :

(i) Shortage of medical and auxiliary personnel compared to number of sick attending the hospital; (ii) Shortage of time at the disposal of fewer personnel; (iii) Shortage of stocks of drugs; (iv) Lack of transport facilities with the poorer sick to reach hospital for medical aid; and (v) Lack of provision of hospital aid at all hours except for emergent cases. Even the latter is not satisfactorily given to a large number.

HOW HEALTH MEASURES CAN REACH EVERY ONE IN A CITY :

The strain on hospital's working can be relaxed only in one way. All ambulatory and non-emergent patients in a town be attached to medical practitioners of their vicinities for their health care, and medical aid. This will enable the aid to reach at the door of the sick and speedily. The sick requiring hospitalisation be picked up by ambulance from their homes and taken to hospital. This is similar to arrangements in the Army where all units have separate medical officers to look after the health needs of the unit people. Anyone not manageable at unit hospital is sent over to the central military hospital. Such an arrangement can be possible only in two ways, either through the National Health Service Scheme under which all medical practitioners shall be employed by state or through modified health insurance scheme as proposed below :

OUTLINES OF NEW SCHEME :

Under the proposed scheme the future medical aid should be on State expense to the poor both at the health insurance clinic and the hospital, but to the rest of the population it should be on contribution basis with the private practitioners and free at the State hospitals. Some people habituated to free medical aid at the hospitals are sure to object to go in for contributory health scheme and some doctors may also not like to join it, but all these difficulties shall have to be faced in the wider interest of the Nation. Other difficulties are anticipated but have their remedy.

It is proposed that all outdoor work in the State hospitals, be stopped and go to the private practitioners on the Health Insurance Scheme in a town, the poorer section getting treatment at State expense and the rest on their contributory subscription.

The State hospitals should serve for emergencies and chronic patients giving full facilities of specialist treatment of all kinds including x-rays and laboratories, free to all at State expense. The State hospitals, so to say, will be functioning as indoor hospitals with enlarged scope for various services and part-time paid workers and honorary workers shall be engaged in them to relieve the full-time salaried people for rural service. They will admit all cases directed by health insurance clinics or coming directly for emergency treatment. Services at these hospitals shall be free to all, rich and poor, and be of the best standard possible. Insurance health clinics would be both individualistic and collective in one covering all the independent medical practioners in the town willing to join the Scheme. Work among them would be equally distributed and areas of the town ear-marked for each type of clinic to look after the health environment and give medical aid (preventive and curative) to the persons living in their respective areas. The financing and remuneration of the workers in the scheme shall be more or less on the basis of the Central Co-operative Health Insurance for Government employees and the State Employees Insurance Scheme for the industrial labour. With modifications in the light of experience of their working, the Scheme shall be managed by the State or responsible bodies like I.M.A.

The Public Health Insurance Scheme will outweigh the present system of medical aid enabling the aid to reach all people to their desired satisfaction, and deal the large quantum of the sickness in the State that cannot be coped with by the present system. It will obviate the paucity of funds to employ requisite number of medical personnel and purchase the required store and drugs and equipment sufficient to provide suitable aid not possible in the present position of the finance of the Government. By this scheme the medical officers will be spared for rural people service and it will go a long way to fight out insanitary causes of illness and decrease sickness in the towns wherever introduced. It will be cheap and efficient, easily available and upto the income capacity of the contributor.

To introduce an entirely social insurance scheme for health planning is impossible here because a large part of the population ill affords to contribute anything, and to give free medical aid to all is also not possible as the funds are short and are needed to be spent on production of food and other income raising industries.

Each practitioner on group can maintain his individual clinic on common premises and be responsible for giving treatment and health preserving measures to the patients allotted to him and also for his colleagues when the latter be absent for reasons of health or leave. Four or more doctors can form a group to yield best results. Nothing but the co-operative insurance scheme can meet with the demands of the present changed times.

QUACKS :

There is cheap maligning of the profession going on for no fault of ours. This is a serious matter requiring Government's serious attention. The Government offers protection to every citizen against fraud, cheating, by anyone to another under Section 420 I.P.C. but for the noble profession of ours this protection is not available. The quacks, that is, people who style themselves doctors without acquiring any knowledge of the science of healing are the people who give us a bad name due to their black deeds in the shape of doing irreparable harm to the innocent disease-stricken bewildered persons and make them shun the word 'doctor', even the genuine

ones. Such a thing is only possible here in India where anybody can take to this art with safety in the absence of any medical act prohibiting persons from practising the art of healing without getting necessary coaching and qualification through a recognised institution for this purpose. Why our Government does not want to bring such an act is a question that has been baffling us for the past ten years. Are these quacks Government agents in cutting down for it the growing population and saving it the botheration of providing food and other necessities for the much increasing population? How long our National Government is going to ignore our just demand for banning the practising of medicine by the unqualified people in the garb of doctors, is a matter agitating us. No National Government can brook such 420 under its nose, or allow affliction, injury and death of innocent people by these cheats against cannons of justice and in the name of Ram Raj. I cannot understand as to which merit in the quacks has appealed to the Government for which it does not bring a suit against these imposters. They cannot be cheap at any stretch of thought. For all money spent on remedies suggested by such quacks is usually a waste. Their treating of the sick can be compared to one shooting in the dark.

To allow them to continue masquerading as doctors on the idea that some medical aid is better than none has no moral stand. Their aid results in more harm than benefit to any except for chance. So I repeat my demand humbly to ban the treatment of the sick at the hands of the unqualified in the interest of the sick persons, the profession that has to bear maligning for their deeds, value of life, science and the country's economy.

I will also demand the ban on the use of the word 'doctor' on signboards by anyone other than those qualified in modern medical science or those on whom the degree of doctorate has been conferred by a university. Discrimination between the genuine and counterfeit doctors is in the interest of State Health. Everyone has the right to know the credentials of the medical benefactor to whom he is going to entrust his precious body for repair, in the most unambiguous terms.

It is very amusing to see the Hakims and Vaids also making use of the word 'doctor' in preference to their own dignified symbols, Hakims and Vaids. This signifies their weakness and hollowness of the profession. They too should be prevented from using the word 'doctor' with their names on the very ground that applies in the case of quacks to prevent the public from being misled by the use of the word doctor.

Government is also responsible in giving bad names to our profession in two or three ways. Whenever the public decries the Government for not providing medical officers to dispensaries lying vacant without them, Government in its defence, libels the doctor for not coming forward to serve the rural people. Is it not defaming us? Why not tell the public at the same time that it cannot afford to employ doctors for lack of funds and expect a highly qualified technician as we are to go in for a sum of Rs. 200/- P.M. It is nothing but degrading our profession. The medical student spends in his college days Rs. 150/- to Rs. 200/- on his living expenses over there. If he is to get the salary of Rs. 200/- what service shall he render to his parents and friends whom he owes so much for his upbringing. There are no prospects of additional income through private practice in rural areas. He has no amenities of a city life for himself or his family. The environment there is very different from which he had been in. The dispensary building, equipment and material for his activities are meagre. He has no facilities of laboratory or x-ray over there. No transport is provided for him to take his clinical material to some bigger hospital nearby for scientific confirmation of his diagnosis or exchange of knowledge with colleagues there. Sometimes living is not easy in the rural areas. How can then one stay there to rust his knowledge? Financially weak medicos may accept such offer and serve for some time but the moment they get better opportunity, they will kick off that service. Nothing short of doctors in Government service can be of use to the rural public for some time at a stretch. The Bhore Committee too had the above view. Put yourself in their position and realise what you are asking for from them. Medical missionaries are always ready to co-operate with Government in the cause of relief to sufferers wherever they be, but they should be provided with human amenities, decent living wages and means to come in touch with their fraternity. Take the lead from Bengal on this question and do the right.

DR. B. D. AGRAWAL
PRESIDENT OF THE CONFERENCE

Ill-equipping of state dispensaries and hospitals with materials is another source that goes to giving a bad name to the profession. It is commonly observed that stocks in hospitals run short of medicines and other necessities. Relatives of patients are asked to provide those articles at their expense. This invites vituperations on the profession although the fault lies with the Government in not providing enough stocks. If the system of supply in Military Hospitals was adopted in the Civil Hospitals, there would not arise the occasion of shortage occurring.

The practice of paying fees to surgeons and physicians in State Hospitals in family wards and private patient-rooms for operative and other work also goes against the good name of the medical profession. Government must rectify these wrong practices forthwith to save the profession from being further blackmailed. If Government needs funds to compensate the services in lieu of stopping their sources of income, meant to make up the deficit in their pay, and to spend on drugs and instruments more than at present, other ways should be found for it. It should fix charges for the services rendered at the State Hospitals to the patients on the basis of individual financial status and the kind of service required. The income thus procured may be taken by the Government to be spent on the pay and other require-

ments. For the same reason legalised permission of private practice to service doctors is undesirable. With this step the doubts in the minds of the patients about the inequality of treatment meted out in the hospitals to the poor shall no longer rise and cast aspersion on the honesty of the doctors. It will give more time to the doctors to attend to the sick in the hospital and to his study to keep himself abreast with the revolutionary changes in medical science. Te demand for stopping private practice of Government doctors has been repeatedly made but it falls on deaf ears. Let the Government beware. Times are changed, and it should leave the old rut and change with the times. Medical persons comprise of the finest brains in the country. They qualify technically with tremendous intellectual labour, employing time and money far excelling those required by other technical subjects like engineering, law and higher scientific examinations. It is on the sensitivity of their quick judgment that hangs the fate of the sick. They have to keep recent advances in medical skill at hand through unending study for all their lives for the benefit of the sick, and in dealing with rich and poor equally they work day and night abnegating their comforts for the good of others. Their ethics are sublime and noble. They deserve high regard for these qualities from both the Government and the public as is shown to their counterparts in America, Russia and Britain. In general, the public takes the doctors as blood suckers and gives them scant regards except when in need. Independent medical practitioners are considered as chemists. Only a few have the guts to demand consultation fee. Because of this attitude of the Government and public no charm is left to become a doctor. Let the intending candidates note it lest they meet disillusionment and frustration after qualifying.

I.M.P.'s are the main target in this respect. Even the Government looks down upon them. They are not respected on equal footing with those in Government service as if they did not belong to the same soil. There are instructions to the Government servants to get themselves treated from Government doctors only, otherwise their Medical Aid bills would not be sanctioned. The same holds good in matter of acceptance of certificates issued by them. Why so? What is the disqualification or inferiority in the I.M.P.'s to be treated like that? Remove all misunderstandings about the profession. Give what is due to it and receive benefit in return to yourself.

In the matter of other public duties like inspection of industrial factories, or visiting of jails or representation on municipalities, only Government servants would have their show and none else. Why all this step-motherly treatment with independent professionists? Queerly enough, the same treatment is given to the retired Government servants when they also fall in the category of I.M.P.'s. These tendencies create division in the profession and do not allow unity to come which is very essential for the profession to play its role in the present time.

Another point. There is so much good material and paraphernalia in the Government hospitals to be made use of in pushing further one's knowledge and practical skill, that a good deal of deficiency existing at present in the I.M.P.'s can be taken off if they are allowed to visit the hospitals and make use of the material there. State hospitals are public property and not exclusively of the Government servants. In the interest of the profession, the beneficial results therefrom to the sick and for the sake of the co-operation and team spirit between the two wings of the profession I will like the Government to issue instructions to State hospital authorities to welcome the I.M.P.'s on all occasions of their visiting the hospitals with the above intentions. At present I.M.P.'s find it sometimes difficult to follow up their patients in the hospitals freely and unhesitatingly.

Another difficulty is that I.M.P.'s do not get day to day medicines controlled by the Excise Department even for months. Licensees always put forth the excuse that Excise Department has not sanctioned the permit of the medicines and they have no stock of the medicine with them. I have complaints from many a doctor in this connection and I understand there is frank corruption going on in the matter of supplies. This is very harmful to the interests of the needy sick.

To the Sale Tax Department I appeal to reconsider the levy of tax on medicines. People cry and demand doctors to be cheap. Sales Tax Department makes them dear. Let not the sufferer already taxed with the suffering be still further taxed with the high cost of medical aid.

Trade in medicine should be allowed only to those conversant with the knowledge of medicine, i.e., pharmacentists and none else. Manufacturers of drugs should stop enclosing literature in packages but supply the same to the doctors only separately, otherwise the public reads the literature and often gets misled.

The Drug Act is not proving as effective as it should be in its application. Not only the use of drugs under Schedule 'H' but also those under B and C.1 should be brought under the Drug Act. Drug Control Inspectors have failed to check the sale of these medicines to undesirable hands by chemists. I.M.A. representatives should be officially permitted to supervise the sale to avoid any laxness in restrictions placed. The present corruption otherwise will not go.

MEDICAL EDUCATION AND RESEARCH :

Medical education in the colleges should be uniform and of high standard. The present times are days of science. Science is advancing in leaps and bounds and medical science should keep pace *pari passu*. The number of doctors in proportion to the population in the country is small. More medical colleges are needed to turn out a large number of doctors every year. Research comes through inquisitiveness of the mind and by chance. That faculty requires material, time and devotional leisure for its development. Our medical colleges lack in all of them, hence research carried out in the colleges is very small. Research always carries the country to progress. This is why our country is backward to other countries in the matter of progress. Psychological science is another need of the day.

To keep fresh the knowledge of the doctors throughout the State it is desirable that a separate publicity department be established in each college with the aim of recording the demonstrations and lectures given by its professors at different occasions and distribute the same to the profession after publishing that record. In that way the knowledge of the doctors in the State can be kept up to the mark and uptodate.

LIFE INSURANCE CORPORATION OF INDIA :

The formation of Life Insurance Corporation of India is quite welcome for the better economy in the State. Its working however needs improvement. Medical workers who form the pivot of life insurance work should not have been left to the mercy of field workers to exploit them. The terms on paper are idealistic to look at; in practice they are slaughtered badly for the sake of business which the officers want to increase by all means, fair and foul. This is sure to sink the Corporation-boat one day, I caution. Many an old examiner have been left out from the list of appointments. It is bad. All should be re-engaged. Every medical person is entitled to share the work of the Corporation, be it small or large.

POPULATION CONTROL :

India's population is fast growing and multiple production results in frail progeny. With its increase arise the problems of accommodation, food and clothing. To keep frail humanity healthy is a tremendous task. Raising of marriageable age, control on exciting cinema films, prohibition of love shows to lower teens, adoption of family planning methods and need of stressing moral

ethics are the chief measures to counteract increase in population and must be impressed on the people by Government.

HEALTH CONSCIOUSNESS :

There is a great need of educating masses about hygienic principles, both personal and social, especially in rural areas. All societies like the Red Cross, St. John Ambulance, Public Relation Department and All India Radio should do their bit in doing intensive health propaganda. The earlier we accomplish it the earlier we reap the fruit. The science of hygiene should be a compulsory subject for all school children right from the first primary class up to the last class in the college. It should be taught verbally in the beginning and practically in the higher classes.

SCHOOL MEDICAL INSPECTION :

Aim of medical inspection of school children is mainly to get the defects in their body checked up in their tender ages by various specialists and so handled that they are effectively freed from these defects when they grow up. The second thing is to bring up their education in healthy environment with all the factors tending to keep them healthy at the school by means of good diet, exercise, mode of seating, arrangement of light in their rooms, provisions of rest, recreation at intervals during study hours and observation of their psychological traits, which suggest their future utility to the country. Playgrounds, gymnasiums, tuck shops, water sources, latrines, urinals, clothes, furniture all have to be kept in view. Today the medical arrangements to these ends are not to be found in schools.

CHILD WELFARE AND MATERNITY CENTRES :

I am glad these centres are being opened by the State. A longfelt want in this direction is going to be fulfilled. Let us hope that some good results come out of them. I hope the centres will be provided with requisite equipment to be effective in service to those for whom they are intended.

* * * * *

The following resolutions were passed at the Conference :

In view of the fact that potent yet dangerous drugs in Schedule H of the Drug Act are being freely used by unqualified persons and these drugs are available to the public even without the prescription of registered medical practitioners, this conference urges upon the Government to see that the Drugs Act 1940 be strictly and effectively enforced in the State by requiring the chemist and druggist to keep a proper stock register showing the receipt and expenditure of these drugs.

That this conference urges upon the Himachal Pradesh Administration and Jammu and Kashmir Government that the pay and emolument of Assistant Surgeons Class II (Non-Gazetted) be brought to the level of the scale allowed in the Punjab State for these services.

Whereas no admission to the condensed M.B.B.S. Course has taken place this year in the Amritsar Medical College, this Conference strongly urges upon the Punjab Government to see that as long as Licentiates are coming forward to avail of this opportunity the admission to the above course is continued.

Now that the seats have been reserved for political sufferers and for the backward area in the Government medical colleges in the State, this conference urges upon the Government that at least 5 per cent seats in the medical colleges in the State be reserved for the children of the doctors qualified in the modern scientific system of medicine.

This conference views with great concern that despite the decision of the Punjab Government to start 36 Primary Health Units in the rural areas of the State, not a single unit fully equipped and staffed has so far been established in spite of the fact that years of the 2nd plan period are coming to a close. In the opinion of this conference this inaction on the part of the Government amounts to failing in their duty towards the people.

While reiterating its previous resolution passed at the 25th Punjab State Medical Conference held at Jagraon, District Ludhiana, on the 4th December, 1955, that "In view of the fact that the present arrangement for the health examination of school children is extremely unsatisfactory, this conference is of the opinion that child welfare officers be appointed on adequate remuneration so that every child may be thoroughly examined to prevent any deterioration of the health of the children under the school health service be started on proper lines so as to improve the health of the student community", this conference appreciates the decision of the Punjab Government to give effect to the above resolution by introducing school health service in the city of Ludhiana to begin with, but views with regret that the same has not been properly staffed and equipped and therefore urges upon the Government to see that this service starts functioning properly immediately and also to see that this service is introduced in other places without any further delay.

This conference reiterates its previous resolution passed at the 24th Punjab State Medical Conference held at Tarn Taran that "In order to improve the working of hospitals and to afford the maximum benefit to the hospital patients and facilities for the training of students and junior members of the staff of Government hospitals, this conference is of the opinion that private practice of all medical personnel in Government employ be stopped forthwith. It further recommends that in view of the arduous and hard nature of the service of these personnel, at all hours of the day and night they should be adequately recompensed and suggests that they be given at least 25 per cent more than the salary of the highest paid members of the corresponding Provincial Civil Service."

Resolved that this conference strongly protests against the hardships and inconveniences to the registered medical practitioners in getting the supply of pethidine, morphia and other allied emergency drugs. The registered medical practitioners should be allowed to get their supply conveniently from the stockist and allowed to import if local supply is short.

This conference urges the Punjab Government to treat L.M.S., Punjab, with Basic F.Sc. medical group qualification which is included in Schedule I of the Indian Medical Council Act, 1933, at par with M.B.B.S. qualification for purpose of service in the Punjab Junior Medical Service as has already been done in case of L.M.S. for Punjab Civil Medical Services and in all the Services of the Central Government.

Whereas under the Indian Constitution the Governor of the State nominates certain members to the State Legislative Council, this conference requests the Governor that at least one medical man be nominated to the Council from amongst the past presidents of the Indian Medical Association, Punjab State Branch.

BRANCH NOTES

AURANGABAD BRANCH—A meeting was held on 19-1-58 when 2 new members were enrolled fulfilling the quota allotted to the branch, which now claims that all medical men in the sub-division are now members of the I.M.A. It was resolved to hold a subdivisional medical conference in March. The blind relief camp at Deo arranged by local members of the branch was a great success and thanks were given to Dr. S. M. Saffique of Patna who had operated on about 200 patients.

At a meeting of the branch on 5-2-58 at Sonenagar, it was resolved to have weekly meetings at different places of the subdivision so that "health week celebration" might be observed throughout the area with success. A reception committee for the subdivisional conference was formed.

A meeting was held on 9-2-58 at Nabinagar. The provisional date of the subdivisional conference was confirmed. It was resolved that individual members would observe the health week programme in their own area. All members were requested to conduct mass vaccination drive, in view of the epidemic nature of smallpox.

In a meeting at Daudnagar on 16-2-58 Dr. Murli Manohar Prasad of Ratiganj branch was unanimously elected president of the subdivisional conference. It was decided to have a Baby Show during the Health Week. It was resolved that members should examine the health of local school boys and send their reports to the Secretary.

A joint meeting with the Rabiganj Branch was held on 23-2-58 at Rabiganj and it was resolved to observe the detailed programme of the Health Week at the headquarters of the branches and that all members should join the subdivisional conference.

The subdivisional medical conference the first of its kind in Bihar was held on 16-3-58 at the Social Club premises at Anrangabad. Thirty members out of a total of 40 attended. Dr. A. K. Sen of Patna unfurled the I.M.A. flag and spoke on aims and objects of the I.M.A. and problems of medical men.

Dr. J. N. Singh of Dalmianagar and Prof. P. N. Sinha of Patna presided over the 1st and 2nd sitting of the scientific session. A number of papers were presented. After the welcome address by Dr. D. D. Prasad, Chairman, Reception Committee, Sri Sarju Prasad Singh, M.L.A., inaugurated the open session. Dr. Murli Manohar Prasad, president of the conference then delivered his address which dealt with problems of local doctors and suggested remedies. Dr. A. K. Mitra, Organising Secretary, read the messages received from absent members and other invitees. Important resolutions were adopted. Fifteen pharmaceutical firms took part in the scientific exhibition. A programme of variety entertainments was arranged in the evening.

BARUIPUR-RAJPUR BRANCH—The annual general meeting was held on 15-12-57. The following office-bearers were elected: President—Dr. Ardha Chandra Banerji; Hony. Secretary—Dr. Prodyot Roy Chowdhury; Hony. Jt. Secretary—Dr. Amiya Chakravorty.

During the year 1956-57 over 6 meetings were held. There were discussions on different subjects. A majority of the members attended.

BHAVNAGAR BRANCH—In a meeting Dr. K. J. Vyas read a paper on Influenza. During March 1958, members of the Branch examined about 4,000 primary school children. The Branch contributed Rs. 250/- towards the Central Building Fund of the I.M.A. Four members resigned and 4 new members were enrolled.

BOMBAY WEST SUBURBAN BRANCH—A meeting was held on 2-3-58. Rare cases of interest were demonstrated by Dr. S. C. Seth and Dr. L. Joshi. Members evinced keen interest and there was a lively discussion. Medical films on Antihistamine agents, Judet's arthoplasty and some aspects of muscle relaxants were shown by courtesy of May & Baker (India) Ltd. Members visited Zandu Pharmaceutical Works Ltd. on 14-3-58 and were welcomed by the management.

A meeting of the members was held on 6-4-58. Twentyone members were present. Dr. (Mrs.) K. Sankari and Dr. Bulabhai Nanavati spoke on Leucorrhoea in General Practice and some Recent Advancements. There was a lively discussion. Dr. C. L. Jhaveri also spoke and answered several questions. He also detailed the proposals of the education-*cum*-pleasure trip to Kashmir organised by the Bombay Territorial Branch. A visit to the Hindustan Lever Ltd. factories was arranged for members in the same week.

DELHI STATE BRANCH—The following resolution was adopted at a meeting of the Branch on 8-4-58:

This meeting of the Delhi Medical Association places on record its deep sense of sorrow and grief at the sad and untimely demise of Dr. B. M. Sharma, past Honorary Secretary and a member of this Association and conveys its heartfelt condolence to the members of the bereaved family.

May his soul rest in peace.

DHANBAD BRANCH—Health Week was observed throughout the district from 10th to 16th March, 1958. The staff of the Jharia Mines Board of Health carried out a sanitation drive in 100 villages. The members of the Branch co-operated with them.

On the 10th, inauguration of the week and a Baby Show was held at Chandankiari. Sri P. C. Bose, M.P., presided. Sri G. Verman, S.D.P., Bagmar, was the chief guest. At the Baby Show 24 special prizes and 300 consolation prizes were distributed. Many speakers spoke on the occasion. Sri P. C. Bose stressed on the need for co-operation between doctors and the people. Dr. R. C. Mukherjee referred to the objectives of the week and Baby Show. Dr. Haronath Mukherji referred to the problem of leprosy. Film shows bearing on health were arranged.

Meetings were held on 11th, 12th, 13th and 14th at Futah, Dharkiro, Kharni, Maharajganj and Kaliasole. Dr. R. Mukherji, Dr. (Capt.) S. C. Mitra, Dr. L. C. Mitra and Dr. B. N. Hazra spoke on healthy living and methods of conquering communicable diseases. The school of Physical Culture gave an impressive demonstration of physical feats.

On the 15th a public meeting and Baby Show were held at Bhowrah School compound. Brig. K. Bag Singh, Commissioner, Coal Mines Welfare Organisation, presided and Mrs. Bag Singh gave away the prizes to the winning babies and about 400 consolation prizes Many speakers addressed the meeting.

On the 16th a meeting was held at Maharajganj. Speakers spoke on health matters. Health films were shown.

JAHANABAD BRANCH—The programme of the Health Week was chalked out at an emergency meeting on 10-3-58 under the presidency of Dr. R. Saran. A committee was formed.

The Health Week was inaugurated by Dr. R. Saran in the Hospital grounds when he spoke on Infectious Diseases. Dr. A. Ahsan spoke on the Role of Vitamins. On 12-3-58 Dr. Saran spoke at the local high school on hygiene and nutrition. On 14-3-58 Dr. Miss Niva Banerjee spoke at the Girls' high school on cleanliness in the home and personal hygiene. A Baby Show was held at the Hospital grounds on 16-3-58. Prizes and sweets were distributed. The members assembled at Makhdumpore in the evening when after a vote of thanks the Health Week was declared closed.

After light refreshments arranged by Dr. Nawal Kishore the monthly meeting of the Branch was held. The resignation of the Hony. Secretary Dr. Quias who was leaving Jahanabad was accepted and Dr. A. Ahsan was elected as Hony. Secretary. The meeting thanked Drs. Ahsan, Saran and Dayal for the keen interest they had taken in the Health Week.

KANDI BRANCH—The annual meeting of the branch was held in October 1957 when Dr. Ram Gopal Das and Major Satchidananda Ghosh were re-elected president and secretary respectively for the fifth successive term.

The annual report showed that during 1956-57 the activities of the branch were mainly directed to organise relief measures for flood victims of 1956. The branch received donations of medicine from: Bengal Provincial Branch of I.M.A.; Dumex Ltd.; East India Pharmaceutical Works, Albert David Ltd.; Glaxo Laboratory, Ltd.; W. T. Suren & Co. Ltd.; Brahmachari Research Institute; Indian Red Cross Society; Murshidabad Dist. Branch; Union Drug & Co., Ltd.; Oriental Research and Chemical Laboratory, Ltd.; Premier Medicine Suppliers & Stores, Ltd.; Indian Health Institute & Laboratory, Ltd.; May & Baker, Ltd.; Mr. Bakshi, Representative, May & Baker, Ltd.; Katyayani Medical Stores and Auradhasthan. Medicines were distributed free from 17-10-56 to 22-8-57 from Kandi Medical Hall, Office of the Branch. Altogether 1,625 prescriptions were served. The Branch also donated medicines to 7 organisations

doing flood relief work, Twenty-five practitioners of the subdivision actively participated in the flood relief work organised by the Branch. Blankets numbering 223 received from B. P. Branch of I.M.A. were distributed.

In December 1956 cholera broke out in epidemic form and the Branch co-operated with the authorities in organising preventive measures.

A subsequent report from Kandi states that owing to the sad death of the Branch President Dr. Ram Gopal Das, Dr. Bimala Pada Ghosh Hazra has been elected president of the Branch.

KANPUR BRANCH—The Foundation Day of the Branch was celebrated on the 29th and 30th March, 1958 by holding a symposium on Different Aspects of Tuberculosis. Speakers from Kanpur and Lucknow Medical Colleges and from amongst private practitioners took part. The function was well attended.

KARIMNAGAR DISTRICT BRANCH—A clinical meeting was held on 19-3-58. All medical officers of the district attended. Dr. A. K. Chary presented 3 cases of coma from various causes with special reference to cerebral malaria. Dr. Mani described a case of bicornuate uterus with successful normal delivery. Dr. Gulam Nabi presented 3 cases of ruptured uterus successfully operated.

Dr. Mani and Dr. A. K. Chary entertained the guests to dinner.

K. G. F. BRANCH—A meeting was organised under the auspices of the Branch in connection with the 10th anniversary of the World Health Organisation. Dr. S. J. Rodda, Director of Public Health, Mysore, presided. Dr. Makri, Dr. R. Nagendran and Dr. Lognathan spoke on 10 years of WHO's work with special emphasis on the eradication of malaria and other diseases. The President spoke on the origin and mode of work of WHO.

KHAMGAON BRANCH—The monthly clinical meeting was held on 1-4-58. After discussing circulars from Central office and State Branch it was unanimously decided that there should be a uniform increase of Rs. 2·00 in C.F.C. from which Re. 1·00 should go to the Central Building Fund. A condolence resolution on the sad death of Dr. N. V. Bal, a valued member of the branch, was passed. Dr. V. R. Sane spoke on Puerperal Insanities. Many members took part in the discussion. Two new members were enrolled.

MAHBUBNAGAR BRANCH—A clinical meeting was held on 16-3-58 under the presidentship of Dr. S. A. Quadri, Civil Surgeon. Dr. Hamid Hussain spoke on Hypertension, Dr. Frezon on a case of Ruptured Uterus and Dr. Raj Purohit on Sycosis Barbae and Hiccough.

NELLORE BRANCH—A meeting was held on 29-3-58 with Dr. S. R. Singh, in the chair.

A resolution condoling the death of Dr. Ananda Reddi, a member of the Branch was adopted, the members observing two minutes' silence. Circular no. 24/57-58 of 21-3-58 from the Central office was discussed and it was unanimously agreed that the proposed amendments be dropped.

Dr. K. C. Nambiar, the day's speaker, gave an instructive lecture with slide demonstration on Surgery and General Practice.

The day's programme ended with a sumptuous dinner given by the president, Dr. S. R. Singh. Earlier Dr. A. Srinivasulu had entertained the gathering to tea.

ORISSA STATE BRANCH—The annual report of the Branch published in February 1958 shows considerable progress. The membership rose from 260 to 285 during the year. Two new local branches were formed making a total of eleven: Cuttack, Berhampur, Bhubaneswar, Balasore, Bolangir, Bhowanipatna, Baripada, Sambulpur, Sundargarh, Koraput and Bhadrak. The 10th annual conference was held at Cuttack at the invitation of the local branch under the presidency of Dr. Jyotsna Dei who in spite of her recent illness took keen interest to make the conference a success.

The Working Committee which conducts the day to day business of the branch held 4 meetings druing the year and discussed many important problems including: The Indian Medical Council Act of 1956; Pay, Status and Remuneration of Medical Men; Medical Education and Research; Life Insurance Corporation; Integration of Medical Cadres; Development Assessment Committee; Refresher Course for Private Practitioners; Building for the State Branch.

Two eminent foreign visitors Drs. Ivan L. Bennet of U.S.A. and Sophus von Rosen of Sweden addressed the members.

The Branch recommended two names for internship and residency posts in U.S.A. and both were selected.

PURI BRANCH—The members of the medical profession residing at Puri held a meeting on 4-4-58 for the purpose of forming a branch of the I.M.A. at Puri. A resolution was adopted to form a branch which will be known as Puri Branch, I.M.A. and will be affiliated to the Orissa State Branch. Dr. S. N. Acharya and Dr. Shibnarayan Acharya were elected president and hony. secretary respectively for the year.

RAXAUL BRANCH—A meeting was held on 8-2-58 with the president Dr. S. C. Chakraborty in the chair.

The accounts were presented and passed. It was decided to collect a subscription of Rs. 5·00 from each member and send the amount to Bettiah branch as an aid to the next State Conference to be held there. Dr. B. Kuar was requested to approach the S.D.O., Motihari, in connection with the Health Week celebrations. The Central suggestion for increment of annual subscription was discussed and the sense of the House was not in favour of increase at present. A lecture on laboratory examination was given by Dr. N. K. Chowdhury.

A meeting was held on 26-2-58 under the presidency of Dr. S. C. Chakraborty.

A resolution condoling the death of Maulana Abul Kalam Azad was passed and a minute's silence all standing was observed.

Resolutions of the combined meeting of the Bettiah, Motihari and Raxaul branches were conveyed by members of the branch who attended the joint meeting and it was decided that members and other qualified members of the profession be requested to become members of the Reception Committee for the coming State conference on payment of Rs. 25·00. It was decided to call a meeting on 1-3-58 inviting locally important persons for the conduct of Health Week programme. Dr. B. Kuar and Dr. Amin were requested to approach government officials for necessary help in this connection.

SALEM BRANCH—At the annual meeting held on 29-3-58 the following office-bearers for the year 1958-59 were elected.

President—Dr. S. Krishnamoorthi Rao; Vice-President—Dr. M. B. Yuvaraja Singh; Hony. Secretary—Capt. V. Raghavendra Rao; Hony. Jt. Secy.—Dr. T. Narayanswamy; Hony. Treasurer—Dr. K. V. Dhanakoti Nayudu; Members of the Executive Committee—Dr. K. Jayaramachandran, Dr. S. Kannan, Dr. Kumari U. B. Lakshmi, Dr. S. Arthanari, Dr. K. Govindarajulu; Representative to Central Council—Dr. K. R. Hariharan; Alternate member to Central Council—Dr. T. S. Sanmughasundaram; Representatives to State Council—Dr. S. Valeeswaram, Dr. T. Narayanaswami, Dr. K. Govindarajulu.

SIROHI BRANCH—A general meeting was held on 14-1-58 with Dr. R. S. Dogra in the chair. Ten members were present.

After routine business the following office-bearers were unanimously elected: President—Dr. R. S. Dogra; Hony. Secretary—Dr. Gyan Prakash; Hony. Treasurer—Dr. Mrs. K. Malhotra. A group photograph was taken and there was a contribution dinner. It was resolved to enrol private practitioners and railway and district doctors as members of the I.M.A.

A meeting was held on 16-3-58 with Dr. R. S. Dogra in the chair. Ten members and 9 non-members were present. The latter were requested to join the I.M.A.

A symposium on Inguinal Hernia was held. Drs. Mrs. Malhotra, G. P. Banerji, Goyal, M. C. Sharma, R. S. Dogra and others took part.

A courtesy lunch was given by Dr. Mrs. S. Chhabra.

UTTAR PRADESH STATE BRANCH—The Jiva Raksha Medal for saving life has been awarded by the President of India to Dr. T. C. Basu Chowdhary, District Officer and Divisional Surgeon of the St. John Ambulance Brigade (India) Agra. This is the first time that this award has gone to Uttar Pradesh and to a member of our Association. Dr. Basu Chowdhary according to the citation displayed conspicuous gallantry and commendable devotion to public duty while rescuing at a great personal risk the two young boys from drowning in the Yumuna. Previously also on many occasions he had endangered his life in saving others.

D. T. C. Basu Chowdhary

Dr. Basu Chowdhary is one of the most popular medical practitioners of Agra and is well known for his social and community services. He is a very old member of the medical association and has done a lot for the profession.

VISAKHAPATNAM BRANCH—A General Body meeting was held on 23-3-58 at Chittivalsa. Eighty doctors attended. A special bus was arranged to take the members from Visakhapatnam. Dr. G. Satyanarayanamurty was in the chair.

There was an interesting symposium on Adrenocorticotrophic Hormones in which Dr. Jeswantharao spoke on Anatomy and Physiology of Adrenal Glands, Dr. T. Srinivasan on Chemistry and Biochemistry of ACTH, Dr. Narayana Reddi on Indications and Contraindications of ACTH and Cortisone, and Dr. N. T. Subramanyam on Evaluation and Limitations of Cortisone and ACTH.

Dr. D. Viswanadham entertained all doctors at Dinner.

Earlier excursions and visits and entertainment were arranged.

APPOINTMENT AS HOUSE PHYSICIAN AT THE GRANGEGORMAN MENTAL HOSPITAL, DUBLIN, IRELAND

An offer of vacancy of a House Physician at the Grangegorman Mental Hospital, Dublin, Ireland, with effect from 1st August, 1958 has been received by the Central Office of the I.M.A., "Hanging Bridge", Daryaganj, Delhi-7. The terms of appointment will be as follows :—

Remuneration—£350/- per annum for the first period of six months, £400/- per annum for the second period of six months, £450/- per annum for the third period of six months, £500/- per annum for the fourth period of six months and for any subsequent period; plus emoluments of furnished apartments, rations, fuel, light, laundry and attendance.

Duration—Six months, commencing 1st August, 1958. A successful candidate will be appointed for a period of six months commencing on 1st August, 1958 but the appointment may be renewed for further periods of six months upto a maximum period of two years in all.

Qualifications—(1) The candidate must : (i) be of good character, (ii) have attained the age of 23 years on or before the first day of the month in which applications have been invited, (iii) be free from any defect or disease which would render him/her unsuitable to hold the office, and be in a state of health such as would indicate a reasonable prospect of ability to render regular and efficient service.

(2) A woman holding the office must be either unmarried or a widow.

(3) Only those doctors who are either registered with Irish Medical Registration Council, or possess qualification registrable with the Council, will be considered and need apply.

Candidates wishing to apply for the above position should send their applications, along with a fee of Rs. 10/-, through their respective State/Territorial Branches, giving the following particulars :—

(1) Name, (2) Address, (3) Date of Birth, (4) Sex, (5) Marital Status, (6) Member of the I.M.A.? Give name of branch, (7) Qualifications, (8) Experience, (9) Copies of testimonials—(not more than three), (10) Names of two references, (11) Passport-size photograph to be attached.

The prospective candidates may have to appear before a Central Selection Committee *at their own expense*.

The successful candidate will have to deposit two years' subscription of the I.M.A. in advance with his local branch and also deposit a sum of Rs. 500/-, out of which Rs. 400/- will be adjusted towards the cost of his passage to Ireland, which will be arranged by the I.M.A. The balance sum of Rs. 100/- will be credited to the Indian Medical Association on account of the expenses incurred in securing the appointment.

Application must reach the Central Office by 31st May, 1958.

The selected candidate will have to reach Dublin before the end of July, 1958.

"Hanging Bridge",
Daryaganj, Delhi-7,
April 28, 1958.

Sd/- D. S. Mehra,
Hony. Assistant Secretary,
Indian Medical Association.

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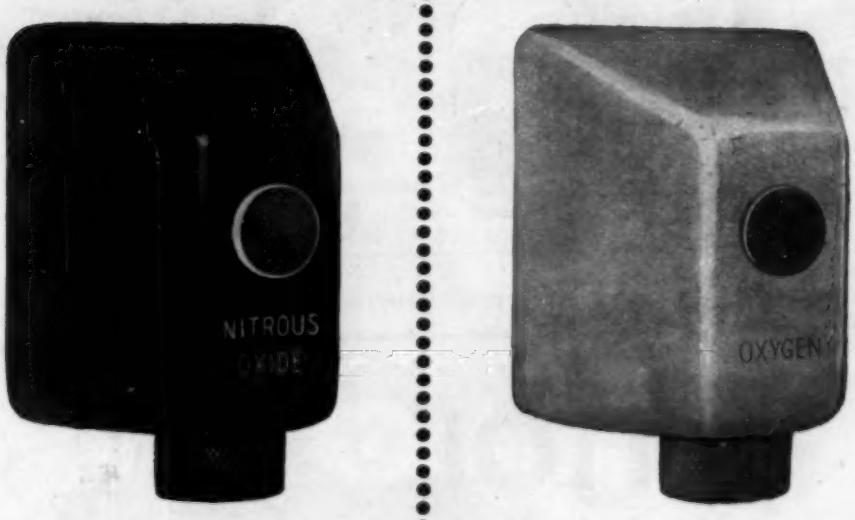

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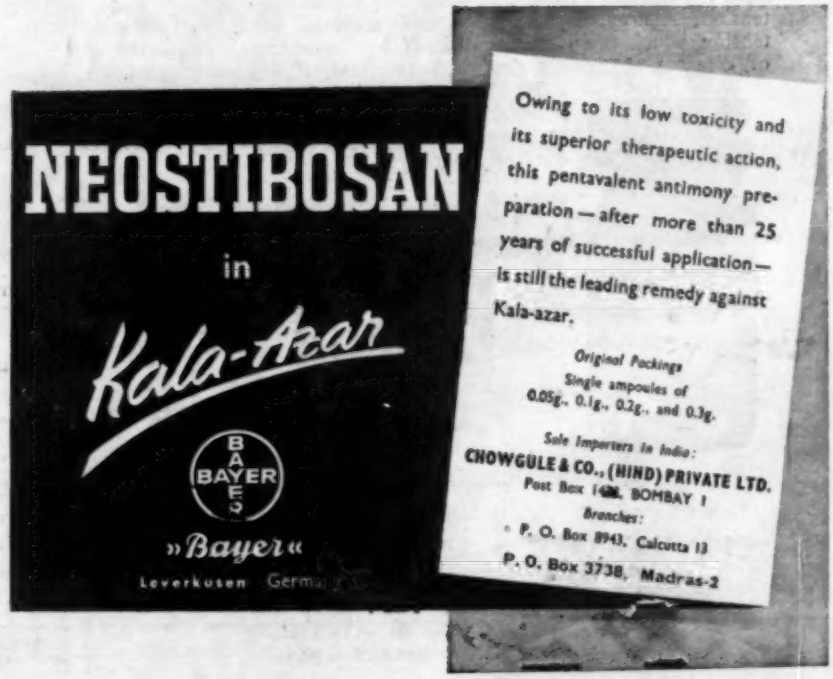
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